

The Good Die Young? HD DVD Obituary

HUB

**The
Computer
Paper**

April 2008

Volume 21 Number 04

Free

Securing Your Sensitive
Data: Strategies to Save
Your Digital Life

Appeasing the Search
Engine Gods

Don't Get Burned

Online Backups
That Work

Power Pellets: Spore Hits
the Home Stretch

Storing and Securing Your
Photos In the Field

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Network Storage

Raid+ RAID ENCLOSURE For dual 3.5" HDD

- USB mass-storage compliant (USB 2.0 and USB 1.1)
- Configurable RAID function for 2 drives.
- Support two 3.5" SATA-I or SATA-II hard drive
- Support up to 2 TB hard drive
- Support USB 2.0 or 10/100 RJ-45 network connection

Model : HUR1-SU2LA

For SATA I HDD or SATA II HDD



Also available in following Versions

• HUR1-SU2 1 x USB 2.0 Port
(up to 480 Mbps).

• HUR1-SU2FWB 1 x USB 2.0 Port (up to 480 Mbps),
1 x IEEE 1394 A (up to 400 Mbps) &
2 x IEEE 1394 B (up to 800 Mbps).



Media Player

media MEDIA PLAYER FOR 3.5" SATA I / SATA II HARD DRIVE

- Function as digital Media player for TV or external hard drive for PC
- Support multiple file format : Photo, Movie, Music and More
- Support AV output to TV, LCD TV & HI-FI speakers without PC or laptop
- USB mass-storage compliant (USB 2.0 and 1.1)
- USB host function available
- Includes with a remote control
- Firmware Upgradable

Model : HM3-SU2TV

Functions



Also available in following Versions

• HM2-U2TV Support 2.5" IDE Hard Drive

• HM2-SU2TV Support 2.5" SATA I / II Hard Drive



External Storage

Network Storage

Synology Server

QNAP Server

Media Storage



Smart-drive

USB 2.0, eSATA & Firewire
Model: HD6-serise



NCIS

Network Attached Storage
Model: HD9-SU2LA



Synology

All-in-One 4-Bay NAS Server
Model: CS-407



QNAP

All-in-One 2-Bay NAS Server
Model: TS-209, 209 Pro



MEDIAGATE

Advance Digital Media Player
Model : MG-450HD



Mediasonic

Wireless-N Adapter
Model : HW1-U2N

Coming Soon !!!

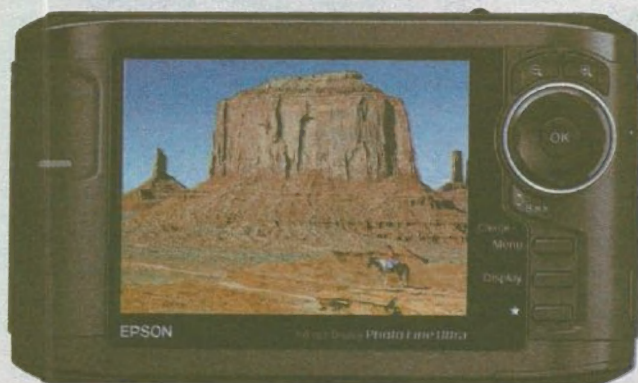
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Tear Into It

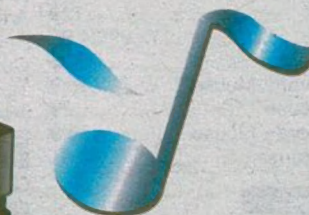
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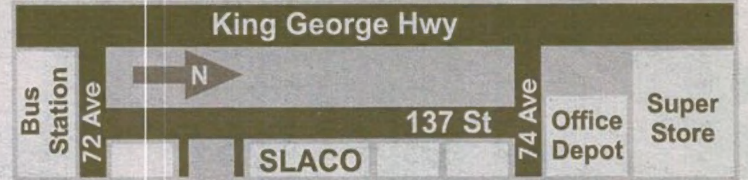
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Intel Pentium Dual Core E2160	\$489
Intel Pentium Dual Core E2180	\$509
Intel Core 2 Duo E4500	\$549

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Intel GMA PCI-E Graphics O/B
Open PCI-Express 16x Slot
LG H55N 20xDVD±RW Dual Layer Drive
5.1 Channel 3D Sound Card O/B
PS/2 Keyboard
Logitech Optical Wheel Mouse
17" P4-ATX USB2.0-Front Case
10/100Mb Ethernet O/B
Speakers w/Headphone Jack
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(1440x900 2ms, 3000:1, Dual Analog/Digital)
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Intel Core 2 Duo E4500/6550	\$599/649
Intel Core 2 Quad Q6600(4x2.4G)	\$739

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160GB 7200RPM SATA2 8M Hard Drive
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Open PCI-Express 16x Slot
LG H55N 20xDVD±RW Dual Layer Drive
6 Channel 5.1 Sound Card O/B
PS/2 Keyboard
Logitech Optical Wheel Mouse
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Intel Core 2 Duo E4500 /E6550	\$689/749
Intel Core 2 Duo E8400(2x3.0G 6M)	\$869
Intel Core 2 Quad Q6600(4x2.4G)	\$849
Intel Core 2 Extreme QX6850(4x3G)	\$1599

Asus P5B SE Motherboard
(Intel P965, SATA, 1333MHz, RAID, Dual Channel)
PC5300 2.0G DDR2-667MHz RAM
320GB 7200RPM SATA2 16M Hard Drive
All-In-One Memory Card Reader
nVidia GF8400GS Video w/512MB/DVI
LG H55N 20xDVD±RW Dual Layer Drive
6 Channel 5.1 Sound Card O/B
PS/2 Keyboard
Logitech Optical Wheel mouse
17" P4-ATX USB2.0-Front Case
10/100/1000Mb Ethernet Card O/B
Vibe 2.1 Speakers w/Subwoofer
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Intel Core 2 Duo E8400(2x3.0G 6M)	\$1029
Intel Core 2 Quad Q6600(4x2.4G)	\$999
Intel Core 2 Extreme QX6850(4x3G)	\$1769

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500GB 7200RPM SATA2 16MB Hard Drive
All-In-One Memory Card Reader
nVidia GF8600GT Video w/1.0G/DVI/TV-out
LG H55N 20xDVD±RW Dual Layer Drive
8 Channel 7.1 Sound Card O/B
MicroSoft Internet PS2 Keyboard
Microsoft Optical Mouse
17" P4-ATX USB2.0-Front Case
10/100/1000Mb Ethernet O/B
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(1440x900 2ms, 3000:1, Dual Analog/Digital)
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USB2.0 Flash Drive 8G/16G.....	42.99/74.99
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Canon Camcorder DC210/DC50/ZR950.....	369/699.9/930.9
Canon camcorder HV10/HR10/HG10.....	1139/1099/1019
Casio EX-S880/EX-Z77/Z1080.....	269.9/198.9/269.9
Casio EX-Z1200/EX-V8.....	358.9/299.9
Olympus FE310/FE340/FE350.....	149.9/198.9/248.9
Olympus S820/S850/S1200/SP560.....	268.9/288.9/329.9/379.9
Olympus E410/E410K2/E510K.....	459/669.9/639
Sony DSCS750/DSCW55/DSCW120.....	179.9/189/219.9
Sony DSCS750/DSCW55/DSCN2.....	369.9/189.9/369
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Mini Secure digital 1.0G/2.0G.....	12.99/19.99
Secure digital 1.0G/2.0/4.0G.....	11.9/14.99/26.99
Secure digital 133x 2.0/4.0G.....	19.99/29.99
XD-Picture Card 1.0G/2.0G.....	32.9/48.9

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Aspen 56K Data/Fax v.90 PCI Modem	\$19.9
Conexant 56K Data/Fax v.90 PCI Modem	18.9

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AMD Sempron64	LE1150(2.0G)	\$449
AMD Athlon64 X2	4200+/4800+	\$489/509
AMD Athlon64 X2	5200+/5600+	\$539/579
AMD Athlon64 X2	6000+/6400+	\$599/619

Asus M2N-MX SE Motherboard
(nForce430,SATA, RAID)
1.0G DDR2-667Mhz RAM
80GB 7200RPM S-ATA 8M Hard drive
All-In-One Memory Card Reader
nvidia GF6100 Video Card O/B
Open PCI-Express 16x Slot
LG H55N 20xDVD±RW Dual Layer Drive
6 Channel 5.1 Sound Card O/B
PS/2 Keyboard
Logitech Optical Wheel Mouse
17" P4-ATX USB2.0-Front Case
10/100Mb Ethernet O/B
Speakers w/Headphone Jack
19" LG L196WTY Wide Screen LCD
(1440x900 2ms, 3000:1, Dual Analog/Digital)
SOLERIA-1320

AMD Sempron64	LE1150(2.0G)	\$509
AMD Athlon64 X2	4200+/4800+	\$549/569
AMD Athlon64 X2	5200+/5600+	\$599/629
AMD Athlon64 X2	6000+/6400+	\$649/669

Asus M2NBP-VM CSM Motherboard
(NVIDIA Business Platform 430B, RAID, Dual Channel)
2.0G DDR2-667Mhz RAM
160GB SATA2 8M cache hard drive
All-In-One Memory Card Reader
nVIDIA Quadro NV210S Graphics/DVI O/B
Open PCI-Express 16x Slot
LG H55N 20xDVD±RW Dual Layer Drive
6 Channel 5.1 Sound Card O/B
PS/2 Keyboard
Logitech Optical Wheel Mouse
17" P4-ATX USB2.0-Front Case
10/100/1000Mb Ethernet O/B
Speakers w/Headphone Jack
19" LG L196WTY Wide Screen LCD
(1440x900 2ms, 3000:1, Dual Analog/Digital)
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AMD Athlon64 X2	4200+/4800+	\$619/639
AMD Athlon64 X2	5200+/5600+	\$669/699
AMD Athlon64 X2	6000+/6400+	\$719/739

Asus M2N-X AM2 Mainboard
(NVIDIA nForce 5, RAID, Dual Channel)
PC5300 2.0G DDR2-667Mhz RAM
320GB S-ATA2 16M Hard Drive
All-In-One Memory Card Reader
nVidia GF8400GS Video w/512M/DVI
LG H55N 20xDVD±RW Dual Layer Drive
6 Channel 5.1 Sound Card O/B
PS/2 Keyboard
Logitech Optical Wheel mouse
17" P4-ATX USB2.0-Front Case
10/100/Mb Ethernet O/B
Vibe 2.1 Speakers w/ Subwoofer
19" LG L196WTY Wide Screen LCD
(1440x900 2ms, 3000:1, Dual Analog/Digital)
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AMD Athlon64 X2	4200+/4800+	\$789/809
AMD Athlon64 X2	5200+/5600+	\$839/879
AMD Athlon64 X2	6000+/6400+	\$899/919
Phenon Quad-Core	9500/9600	\$949/979

Asus M3A/M2N-E SLI AM2 Mainboard
(AMD770/GF5 SLI, RAID, Dual Channel)
2.0GB DDR2-800 Dual Channel RAM
500GB 7200RPM SATA2 16MB Hard Drive
All-In-One Memory Card Reader
nVIDIA GF8600GT Video w/1.0G/DVI/TV-out
LG H55N 20xDVD±RW Dual Layer Drive
8-Channel 7.1 Sound Card O/B
Logitech Deluxe 250 desktop combo
(Keyboard + Optical Wheel Mouse)
17" P4-ATX USB2.0-Front Case
10/100/1000Mb Gigabit Ethernet O/B
Altec Lansing VS3251 5.1 Speakers w/Remote
19" LG L196WTY Wide Screen LCD
(1440x900 2ms, 3000:1, Dual Analog/Digital)
SOLERIA-7320

MOTHERBOARD

ASUS M2A-VM-B/M2A-VM	\$74.9/76.9
ASUS M2A-VM-HDMI/M2N-E	87.9/109.9
ASUS (AM2) M2NE-SLI/M2N-LR	99.9/236.9
ASUS (AM2) M2N-MX SE/M2N-MX SE Plus	67.9/69.9
ASUS M2N-SLI-Deluxe	149.9
ASUS M2N-X/M2NPV-VM	78.9/92.9
ASUS AM2 M2NBP-VM/CSM(corporate edition)	89.9
ASUS M2N32-SLI-Premium/M2N32-SLI-WF	209.9/189.9
ASUS M2N32-WS-Pro/M2R32-MVP	219.9/134.9
ASUS M3A/M3A32-MVP-WF	94.9/229.9
ASUS M3A78-EMH	104.9
ASUS P5SD2-X/P5VD2-MX-SE/P5B-Premium	69.9/69.9/219.9
ASUS P5B-VM-SE/P5B-SE	99.9/99.9
ASUS P5E/P5E-VM-DO	238.9/129.9
ASUS P5K/P5K-Deluxe-WF	154.9/209.9
ASUS P5K-E/P5K-E/WF	154.9/164.9
ASUS P5K-Premium-WF/P5K-SE/P5K-WS	204.9/109.9/224.9
ASUS P5K3-Deluxe-WF/P5K64-WS	219.9/244.9
ASUS P5L-MX/P5N-E-SLI	79.9/134.9
ASUS P5N-MX/P5N-T-Deluxe NF780i	74.9/266.9
ASUS P5NT-WS/P5N32-E-SLI	234.9/224.9
ASUS P5W-DH-Deluxe/P5WDG2-WS-Pro	189.9/289.9
ASUS Striker NF680i/StrikerII NF780i	314.9/319.9
ASUS StrikerII EX	459.9
Asus Intef X38 Chipset Maximus-Form/EXT	269.9/359.9
ECS 945GZT-M/945P-A(3.0)	78/89.9
Foxconn 760GXK8MC-RS/K8M890-M2MA	69/79
Foxconn 45CMX	59.9
PC Partner 915PAS7-A47 i915 chipset Fireware	79
Gigabyte GA965P-DS3/S3	144/115
Gigabyte GAP35-DS3R	159.9
Gigabyte GAM57SLI-S4/GAM595SLI-S5	124/209
MSI P35-NEO-F/965 Platinum	125/159.9
MSI K9N-Diamond/K9N-SLI-Platinum	199/145

MONITOR

Acer LCD 17" AL1716FB/AL1717FBD	\$165.9/189.9
Acer 19" LCD X193WB/20" X203WB	192.9/205.9
Acer 20" Ferrari F20 800:1 8ms DVI w/speaker	449.9
Acer 22" X223WBD	238.9
Acer 24" X243WBD/26" X263WBD	369.9/449.9
Acer LCD TV 32" AT3220A 1366x768 8ms DV	644.9
Daytek LCD Touch Screen 15"/17"	599/769
Daytek 46" DT-4660 8ms 1080P	1199
KDS 19" K-92BW 500:1 5ms Wide screen	189.9
KDS 20" K20MDWB 1000:1 5ms	219.9
KDS 22" K22MDWB 700:1 2ms DVI	239.9
KDS 24" K-24MDWB	429.9
LG 17" L1752TX Analog/Digital 5ms 2000:1	189.9
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LG 1918S 1280x1024dpi 8ms	219.9
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LG 20" L206WTY 1680x1050 2ms 3000:1	235.9
LG 226WTY 22" 1680x1050 2ms 3000:1 Tilt, Swivel	269.9
LG 24" L246WH 1920x1200 5ms 2000:1 HDMI	455.9
LG L245WP 24"1920x1200 8ms 1000:1 HDMI	529.9
Samsung 17" 720N LCD 600:1 8ms	185.9
Samsung 19" 931BW	209.9
Samsung LCD 931C	259
Samsung LCD 920NM	199.9
Samsung LCD 20" 203B	234.9
Samsung LCD 22" 225BW 5ms 700:1	269.9
Samsung LCD 24" 245T 1500:1 6ms	695.99
Samsung LCD 27" 275T 1000:1 6ms	925.99
ViewSonic 17" VA1703WB/19" VA903B	188.9/235.9
ViewSonic 19" VA1903WB/VA1916WB	208.9/224.9
ViewSonic LCD 19" VP930/VG1930WM	348/249
ViewSonic LCD 19" VX1945WM/VX2035WM	285/269
ViewSonic LCD VG2030WM/VP2130B	279.9/615.9
ViewSonic LCD 22" VX2235WM	299.9
ViewSonic 24" VX2435WM	678.9

NETWORKING

CNet 10/100Mb Switch 5/8/16 Port	\$25/29.9/69
Impression 10/100Mb Ethernet Card	9.9
Asus Wireless G 54Mb WL-520GU Router	54.9
Asus Wireless N Multi-function WL500W Router	108.9
Asus Wireless PCI WL-138G-V2/WL130N	29.9/74.9
Belkin Wireless G 54Mb PCI Ethernet Adapter	28.99
Belkin wireless-G 54Mb Router	29.99
NovaTech Wireless-G 54Mb Router	34.9
Planet WirelessG 54Mb Ethernet PCI/PCMCIA	28.9/29.9
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Planet PL-201 85Mb Power line Ethernet Adapter	59.9
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D-Link Wireless DI-524 Router 802.11G 54Mb	53.9
D-Link Wireless DI-624 ExtremG Router 108Mb	54.9
D-Link DIR-625 Wireless-N Router	89.9
D-Link DWA552 Extrem N Wireless Rangebooster PCI	79.9
D-Link DWL-G630 54Mb PCMCIA LAN Wireless	34.9
D-Link wireless LAN PCI DWL-G510 54Mb	45.9
D-Link wireless LAN PCI DWL-G520 108Mb	52.9
D-Link wireless LAN PCMCIA DWL-G650 108Mb	39.9
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D-Link Switch 8 port DSS-8+/16 port DSS-16+	49/78
D-Link Gigabit Switch 5 port DGS-1005D	49.9
D-Link Gigabit Switch 8 port DGS-1008D	69.9
Linksys wireless PCI card WMP54G	49.9
Linksys WUSB54G wireless USB card	49.9
Linksys WPC54G wireless PCMCIA card	49.9
Linksys WRT54G 54Mb wireless G router	59.9
Linksys WRT300N wireless -N Router	109.99
Linksys WMP300N wireless -N PCI Adapter	79.99
Linksys WUSB300N wireless -N USB Adapter	79.99
Linksys WPC300N wireless -N PCMCIA .ter	79.99
Netgear Gigabit Switch 4 port GS605NA	54.9
Netgear Gigabit Switch 8 port GS608NA	78.9
Netgear 10/100MB Switch 16 port FS116NA	79.9
Cable Assembly 3/6/10	4/5/6
Cable Assembly 25/50/75/100ft	9/14/19/24
CAT5e Cable 50/75/100/1000ft	9/12/15/75

PRINTER/SCANNER

Brother 240C/440CN/465CN	\$79.9/129.9/99.9
Canon IP1800/3500/4500/IP90	68.9/108.9/164.9/294.9
Canon IP6700D/Pro9000/Pro9500	199.9/579.9/859.9
Large format IPF5100/W6400/IPF8000	2129/3719/5899
Large Format IPF5000/IPF6100/IPF710	1539/2349/4049
Canon MP-140/210/520/830/960	99.9/109.9/184.9/299.9/389.9
Canon MFC MF-3240/4150/6530/8180C	209/299/669/849
Canon Scanner 4400F/8800F/LIDE25	156.9/248.9/89.9
Epson C120/1400R/1800	95.9/279.9/459.9
Epson CD printer R280/380/800/2400	114.9/145/364.9/729
Epson CX4450/7450/8400	59.9/89.9/109.9
Brother Laser HL-2030/2040	79.9/89.9
Brother HL 2070N/5250DN	129.9/289.9
Brother Color Laser 4040CN/4050CDN	469.9/549.9
Okidata Color Laser C3400N/C5500N	379.9/569.9
Okidata Color Laser C5800LDN/C6000N	759.9/669
Okidata DOT Matrix 186/186S/320T	269/319/349
Samsung Laser 2010/3051N/3561N	79.9/174.9/619.9
Brother Toner TN 250/350/460/560	29.9/59.9/59.9
Canon Toner w/Drum E40/A30/S35/FX-3	69/69/54/54
HP Toner w/Drum C7115A/C7115X/Q2612A	49/54/59
HP Toner w/Drum C92298A/C3903A/C4092A	49/49/49
Panasonic Toner FA76/UG3313/UG3350	19.9/75/75
Samsung Toner w/Drum ML1610D/1210/1710D	62.9
Samsung Toner Drum SF4500/SF5100/SCX4216D	62.9
SamsunG Toner Drum SCX-4521D3	69

SOFTWARE

McAfee Virusscan 2008 Plus	\$19.99
(McAfee AntivirusScan 2008+ Software Firewall + Antispyware)	
McAfee Internet Security Suite 2008	25.9
Norton Antivirus 2008	19.99
Norton Internet Security 2008	29.99
(Norton Antivirus + Software Firewall + Anti-Spam + Anti-Popup)	

SOUND/SPEAKER

PowerData PCI Sound Card 3.1/5.1	\$14/16
Power Data UAB External Sound Card	24.9
Creative SB Audigy SE 7.1	29.9
Creative SB X-Fi Xtreme Sound	49.9
Creative SB X-Fi Xtreme Audio retail box	69.9
Creative SB X-Fi Xtreme Gamer	95.99
Creative SB X-Fi Xtreme Gamer Fatality Pro	138.9
Creative SB X-Fi Platinum Fatality Champion	178.9
Vibe 2.1 Speaker with subwoofer/2 pc Speaker	11.9/6
Altec Lansing VS3251 5.1 Spk. w/Wireless remote	58.9
Altec Lansing FX4021/FX5051/FX6021	129/219/215
Logitech Z5500	299.9
Logitech X540/X530	78.99/69.9

STORAGE

Western Digital 80G 7200 RPM IDE(PATA) Hard Drive	\$43.99
IDE (Parallel-ATA) 7200RPM Hard drive with 8MB buffer cache:	
80G/160G/250/320G	\$45.99/55.9/67.9/79.9
IDE(Parallel-PATA)7200rpm Hard drive with 16MB buffer cache:	
320G/500G	89.9/109.9
SATA 8M 80G/160G/250G	44.9/55.9/66.9
SATA 16M 250/320/500G	69.9/82.9/105.9
WD Raptor 10000rpm 74/150G	148.9/184.9
Seagate Cheetah ST314685SS 147G 15000rpm SAS	269.9

VIDEO

Asus PCI-E 256M EAH 2400Pro/2600Pro	\$59.9/84.9
Asus PCI-E EAH3850 256M/512M	194.9/205.9
Asus PCI-E EAH3870 w/512M/HTDP/DVI/TV-out	224.9
Asus PCI-E Silent 256M EN8500GT/8600GT	99.99/119.9
Asus EN8800GT 512M	258.9
Asus 768M EN8800GT/8800Ultra	499/699
ATI X1650Pro TV-out DVI PCI-E 512M	69.9
ATI X1950Pro AGP TV-put DVI 256/512M	84.9/89.9
ATI AGP 8X HD2600Pro 512M DVI	108.9
ATI AGP 8X HD2600XT 512M DDR3 DVI	138.9
ATI X1950GT PCI-E 256M DDR3,DVI	138.9
ATI X1950Pro PCI-E Dual GPU 1.0G	458.9
ATI HD2600Pro AGP8x DVI 512M	109.9
ATI HD2600Pro PCI-E DVI w/audio 512M	84.9
ATI HD2600XT PCI-E DVI w/audio 256/512M	108.9/124.9
ATI X2900Pro 512M/1.0G	278.9/329.9
ATI HD3870 512M DDR4/DVI/TV-out	244.9
eVGA AGP 6200 AGP8x 128M TV-out	39.9
eVGA AGP 6200 AGP8x 256M TV-out DVI	44.9
eVGA PCI-E 7200GS TV-out, DVI 256M	44.9
eVGA PCI-E 256M 7300GT/7600GS	65.9/94.9
eVGA PCI-E 7600GT 256M DDR3/TV-out/DVI	109.9
eVGA PCI-E 256M, DVI GF8400GS/8500GT	49.9/74.9
eVGA 8600GT 256M DDR3 DVI TV-out	114.9
eVGA 8600GTS 256M DDR3 DVI TV-out	159.9
eVGA GF8800GT 512M	239.9
eVGA GF9600GT 512M	189.9
eVga E-GeF9800 Gx2 1024M	609.9
Gigabyte 8800GT 512M	249.9
Gigabyte 8800GTS 640M	399
Leadtek 8800GTS 640M/8800GTX 768M	399/559
Matrox Parhelia PCI-E 128M Dual DVI	339
Matrox Parhelia w/all PCI & PCI-X 256M	2499
MSI NX8800GTS 640M/NX8800GTX 768m	409/569
Palit GF8400GS DVI TV-out PCI-E 256/512M	48.9/58.9
Palit GF8600GT DVI TV-out 256M/1.0G	114.9/129.9
Palit GF8800GT 512M/1.0G	229.9/289.9
Zotac PCI-E DVI GF8600GT 512M	139.9
Zotac PCI-E GF8800GT 512M/1.0G	248.9/298.9
Zotac PCI-E 512M DDR3 GF9600GT	189.9
TV Tuner w/Remote	39
Avermedia TV-PVR150+ TV tuner	99
External USB TV-Tuner	39
Diret TV Box watch TV without computer	68
Hauppauge WinTV-USB2/PVR-150	98.9/89.9
Hauppauge WinTV-PVR-150L/PVR-150N	79.9/99.9
Hauppauge WinTV-HVR1600/HVR-160R	108.9/128.9
Hauppauge WinTV-PVR500(2xTuner)/HVR950	188.99/99.9



Back in the day which in tech terms is a euphemism for "about ten years ago," you bought a CD and that was that. You were now the proud owner of a piece of pressed polycarbonate, digitally encoded with 15 of your then-favourite band's hits. You didn't own the songs on that disc but you did own the disc itself. It was yours to do with as you pleased... assuming you didn't copy the music and sell it or hand it out for free.

Now, assume you lend your CD to a friend. You can't play it anymore because you don't have access to the disc. After a week (or six months if your friends are anything like mine) you get your CD back. And with the return of the disc, you realize that Warrant's Cherry Pie album is not quite to your tastes anymore. So, you run down to Looney Tunes, Dr. Disc, Spin Doctor or any number of smaller record shops, Cherry Pie and several other discs that have fallen out of favour stashed in your backpack, to see what the proprietor might give you for them. Probably a mere couple of bucks a piece but every bit helps. With the proceeds, you pick up a couple of used discs from the shelf.

You're happy because you traded in some music that you no longer listened to or felt any connection with. The store owner's happy because he or she can put a mark-up on the discs you sold and sell them to the next person who in turn, will be happy to be getting a deal. That happiness may abate once they throw Warrant's Cherry Pie in their CD player and realize why this particular disc found its way to the the used bin in the first place, but that's none of our concern. Caveat emptor and all that.

What was sold, marked up and sold again was a thin piece of polycarbonate. With it went your usage rights to the content on the disc. If you made a tape of the CD to play in your car, you really shouldn't be listening to it. And not just because it's Warrant. Your usage rights of the music disappeared along with that piece of

polycarbonate. It's digital rights management (DRM) from a less digital time.

Digital killed the...

Enter downloadable music. It's more convenient: you can grab the latest single right from your desk while you're still in your underwear. Try that at HMV. It's less expensive: generally speaking, a full album can be had for \$10 compared with usually slightly more for a hard copy CD. But it's also less "yours": you can't really lend it to a friend, unless you're willing to part with your MP3 player for a couple of weeks – or unless you both have a Zune which is somewhat unlikely at this point in time. You can't sell it to someone else when you're over the top-40 band in question. There is no such thing as a second-hand digital download. If you don't like the music on your PC or player anymore, tough luck; either delete it or archive it and buy some more.

The music we buy has never been ours; what we paid for was the delivery media; a CD (or tape, MiniDisc, LP, 8 track or wax cylinder). With it came the usage rights for the music. Music purchased digitally muddies the waters of ownership. There is no physical item being purchased and since there are no-resale clauses within the end user license agreement for the music and the software you used to download it.

If, heaven forbid, someone breaks in to your house and steals your extensive CD collection, your home insurance policy would cover the cost of replacement (or not... read the fine print). Try getting your insurance provider to pony up for your extensive, legally purchased iTunes, Napster or PureTracks.ca collection. I have a sneaking suspicion it would be an uphill battle. Figure that your entry-level hard drive based digital audio player probably has 40GB of storage space, more likely it's 80GB and some go as high as



formerly known as
"Discount Mac Club"

145-4471 No.6 Road, Richmond, BC, Canada V6V 1P8

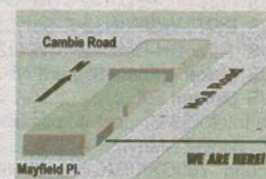
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- 4 Complimentary 1-hour On-site 1-on-1 personal computer tutoring
- 5 Warranty or Out-of-warranty Repairs: Apple Authorized Service Centre with experienced Apple Certified Technicians
- 6 We accept trade-in
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- 8 Discount on cash purchases*
- 9 Buy a new Mac, and have Microsoft Windows XP installed at a special discounted price
- 10 **Current Promotion:** Buy a new Mac and a Brother All-in-one Printer for only \$50.00 *



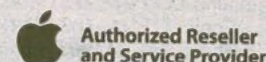
*Some restrictions apply. Please call for details.

Introducing the new MacBook Air



Introducing the world's thinnest notebook: MacBook Air. It measures an unprecedented 0.16 inches at its thinnest point while its maximum height of 0.76 inches is less than the thinnest point on competing notebooks. In addition to a stunning 13.3-inch LED-backlit widescreen display, MacBook Air offers a full-size and backlit keyboard, a built-in iSight video camera for video conferencing, and a spacious trackpad with multi-touch gesture support, letting users pinch, rotate and swipe. The new notebook is powered by a 1.6 GHz or 1.8 GHz Intel Core 2 Duo processor with 4MB L2 cache, and it includes as standard features 2GB of memory, an 80GB 1.8-inch hard drive, and the latest 802.11n Wi-Fi technology and Bluetooth 2.1. Starting at just \$1,899.

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April Special!

AMD 65 3500 M2 Processor
Asus M2N-MX SE Motherboard
1GB DDR2 Transcend 667 Memory
Western Digital 80GB Sata Hard Drive
LG 18X DVD Sata Writer w/Software
Nvidia 6100 On Board Video On Board
10/100 Lan
17" Foxconn Tower Case
w/400Watt Power
Microsoft Enhanced Keyboard
Microsot Optical Mouse



April Special!

Intel Core 2 Duo 2.2 E4500 CPU
Asus P5N-E SLI 775 Motherboard
2 GB DDR2 Memory
250GB Western Digital Sata Drive
LG 18X DVD SATA Burner w/Software
Nvideo 8600GT PCI Express Video Card, On Board Sound
10/100/1Gb Lan
Sonata III Silent Tower Case
w/500Watt Power
Microsoft Multimedia Keyboard
Microsoft Optical Wheel Mouse



DESKTOP SYSTEM OPTIONS

WINDOWS XP HOME - \$99 VISTA BASIC - \$99 VISTA BUSINESS - \$159 17" ACER LCD - \$185 22" ACER LCD - \$269
WINDOWS XP PRO - \$159 VISTA PREM - \$119 VISTA ULTIMATE - \$219 19" ACER LCD - \$199 24" ACER WIDESCREEN - \$399



MSI Pink PR-210 \$955

AMD Turion™64 X2 Processor
Windows Vista® Home Premium
12" ACV (Amazing Crystal Vision)
Widescreen Display
120GB Hard Drive
1GB Memory
ATI Radeon Xpress 1270 Video
Elegant and Slim Design in Fashion Color
Fingerprint Reader
AI Array MIC
HDMI (High-Definition Multimedia Interface) Output
Built-in 1.3 Mega Pixel Webcam
Built-in Digital TV Receiver (optional)
Weight: 1.8Kg



Acer Gemstone 5920 \$899

Intel® Core™2 Duo Processor T5550
1.83GHz, 667MHz, 2MB L2 Cache
160GB Hard Drive 5400RPM
Super-Multi (DVD R +/-) DL
5-in-1 Memory Card Reader
15.4" WXGA Crystal Brite Screen
NVIDIA® GeForce® 8600M GS
256MB
802.11a/b/g Wireless LAN
10/100/1GB Lan
Bluetooth
V.92 Integrated Modem
1.3MP Webcam
Six Cell Lithium Ion Battery
Microsoft® Works 8.5 (full version)
Windows Vista® Home Premium



Asus A7K-A1 \$1299

AMD Turion™ 64 X2 TL60 2.0GHz
Windows Vista® Home Premium
2GB DDR2 667MHz (1Gx2)
17" WXGA+ (1440 x 900)
ATI HD 2600 DDR3 256MB (DX10)
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160GB. Now, assume that you've filled the entry-level hard drive with legally purchased digital music. Figure \$1 per song and figure the device can hold about 8,000 songs (assuming 4.5MB per song). That's \$8,000. What happens if you lose your MP3 player or it's damaged beyond repair. You buy a new one, try to sync it with your PC only to find your usage rights for the music you're trying to load up went the way of your errant or busted MP3 player.

So what's the answer to personal media ownership? Well, since we've never really owned the music we've bought and given that legit music download sites make that more clear than ever before, is a subscription service the answer? Perhaps by paying in the region of \$10/mo. for unlimited access to music you would never really have owned anyway is the smart thing to do? Perhaps buying CDs and ripping our own (completely legal) MP3s from them is the answer. Of course, in keeping with the theme of this month's issue, backing up your personal music collection is certainly something we should all be doing (though you may still run in to DRM issues).

Then again, maybe karaoke is the wave of the future...

Enjoy the issue,
Andrew Moore-Crispin

By the time this issue hits the streets, we'll be well under way with a redesign and rethinking of our Web site, www.hubcanada.com. Come by and have a look. Our new Web strategy will see more and more online-only articles from our excellent HUB: The Computer Paper writers, breaking news, in-depth product reviews and more. All from our uniquely Canadian point of view. We're enhancing the community feel of the site and invite your thoughts. Stop by and let us know what you think... and enter our contest while you're at it.



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Tech Teens?

Before you call that kid down the street to do a little network trouble shooting or teach you Boolean search logic, you may want to rethink your stereotypes. Older computer users often consider the younger generation to be tech whizzes. A recent Ipsos Reid survey suggests that's not necessarily the case. A study on teens and the Internet found that youth aged 12 to 17 actually spend less time online than adults and also consider the 'net to be less important in their day-to-day life.

According to the survey, teens tend to focus their online time on just a few activities mostly related to socializing, gaming and music downloading. The survey also suggests that teens are no more well versed in important Internet issues like security and privacy than older users. Teen users tend to stick with the net they know and aren't comfortable navigating too far beyond, the survey suggests.

The time that is spent by teens online is actually rather limited, with 12 to 17 year olds spending, on average, only 13 hours per week on the Internet (compared to a weekly average of 19 hours for online adults), and that number has not increased since Ipsos last measured online teen behaviour in 2004. There are at least a couple of factors that might account for the relatively little time teens spend on online. One is the influence of parents on teens' Internet use – over one-half (54%) of online teens surveyed reported that their parents place time limits or curfews on when they can access the Internet. The other is that only a minority of teens (37%) agree that using the Internet is an important part of their day (compared to 51% of adults).

Online socializing is by far, the overwhelming reason why teens surf the net. The majority of teens surveyed (88%) have participated in an online social activity (compared to 70% of adults) and more than half (59%) visit online social networks or communities a few times a week to daily. Many teens report that the Internet is important to their social life (61%) and, among those who visit online social networks or communities, half (52%) say it is important to their day-to-day life. As a group, teens tend to be aware of online social networks or communities such as Windows Live Space, YouTube, Facebook, and MySpace. In addition to visiting online social websites frequently, teens tend to spend a significant proportion of their Internet time on these sites. For example, teens who are aware of the websites Windows Live Space and YouTube spend a weekly average of 7 hours and 5 hours, respectively, on these sites.

Also of importance to teens on a daily basis is participating in live, online chats and the majority of teens who participate in this online social activity do so on a weekly or daily basis. Teens are heavy users of instant messaging. Three-quarters of teens (74%) have used instant messaging to communicate with friends or family members, making applications such as Windows Live Messenger (formerly called MSN Messenger) indispensable to teens. In addition to socializing online, teens are busy downloading music from the Internet and gaming. Nearly two-thirds of teens (64%) have downloaded digital music or MP3 files, and nearly one-third (30%) of online teens do this often, from a few times a week to daily (compared to 7% of adults). Teens are also avid online gamers, with over half of teens playing against people they know or complete strangers, and visiting gaming websites at least a few times a week or more.

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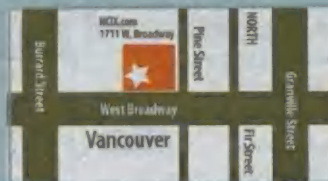
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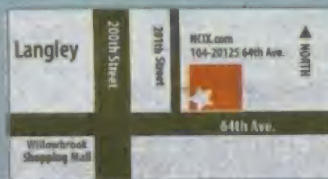
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Secure Online Backup

Taking off-site backup to a whole new level

Breaking up, as Neil Sedaka pointed out more than 40 years ago, is so hard to do. Fortunately, backing up is easy to do, or at least it can be if you use one of the many good online backup services. There are hundreds (if not thousands) to choose from but we will focus on two of the most popular ones: Mozy (Home and Pro) and Carbonite.

There have been numerous articles written over the years on the importance of backing up your data regularly. I've contributed to this glut myself. Rather than revisiting very familiar terrain I will assume that you've read at least one of these articles and are already backing up your data, or at least are thinking about how to do this. You might already be using online backup but looking for a service that does a better job. Or perhaps just costs less.

Why consider online backup at all if you are already backing up to CD, DVD, tape drive, or external drive (including USB thumb drive)? There's a fundamental characteristic that distinguishes online backup from other methods and makes it so valuable: it automatically stores your data offsite. Good backup practice demands that you store, on a regular basis, a complete and current backup offsite so that the

same calamity doesn't strike your computer and backup. Consider fire or water damage, theft, lightning strikes or just common voltage spikes. If your computer and backup media are in the same room or building, there's a chance that both can be lost in the same incident. That's not an issue with online backup since your data is sitting on a redundant disk in a secure data centre somewhere far away, and furthermore that data is mirrored in some other distant location.

One of the lessons the computer industry learned from the Katrina disaster in 2005 was that offsite should mean something more than elsewhere in a city or even in a region. Businesses in New Orleans that backed up to data centres in Mississippi were still at risk of losing their data in Katrina (and in fact some did). Fortunately, vendors of reputable online backup services are aware of this issue and have taken appropriate steps. Short of global thermonuclear war or a large asteroid strike, the data in their care is safe. And in an extreme like that, data back ups are probably going to be low on your list of concerns.

Another advantage of online backup is that it frees you from the need to manage the media you use. Media needs to be tested regularly and rotated, and that can be time-consuming, if it is done at all. Tapes have a surprisingly high failure rate but external drives and optical discs are not immune to sudden failure, either. Many businesses and individuals find out that media has gone bad only when it is necessary to restore data from it. Then there's the issue of cost. If you backup to an external drive, and one is always stored offsite, you'll probably need a total of three, as a minimum.

Online backup does away with these and other concerns. Once it is installed and configured it backs up daily (or more often) without fail, working silently in the background. It is vulnerable only to Internet access problems. However, even intermittent Internet outages won't prevent your data from being backed up. Most online backup services just keep trying until they complete the backup.

So much for generalities. Let's look at the details of two superior solutions.

Carbonite and Mozy

www.carbonite.com www.mozy.com

The current version of Carbonite, the one I tested, is designed for Windows XP and Windows Vista. It will not support Windows 2000 or older versions of Windows. A version for the Mac is scheduled for release in mid-2008. Carbonite offers a free 15-day trial if you want to try before you buy.

Although Carbonite can be used in a corporate setting, it is really designed for the SOHO user. Carbonite can back up everything on your hard disk, regardless of size, but by default it backs up your Documents and Settings folder, including documents, settings, photos, email, music and data from other applications such as Quicken and Money. That's exactly what most users want to back up. If your requirements are different, it's easy to change these settings.

Carbonite encrypts your files before they travel on the Internet and they remain encrypted on their servers. As long as you choose a strong password and keep it confidential, your backups will remain secure, even from Carbonite employees.

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Testimonial:
I am so thrilled—I wish all my computer experiences had such a happy ending. I installed Carbonite, prepared for the typical installation hassles. Instead, it installed with a few quick clicks. After that, I ignored it, and almost forgot I had even installed it, until I lost an important folder. I got mentally prepared for a few hours of hassles and confusion to try to restore the missing files. Within a few minutes I had them restored to my laptop. Directly.

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My plants love water; my computer doesn't

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[Get Started](#)

Simple, Automatic, Secure Online Backup

Why all the fuss about backup?
Chances are you have a lot of important stuff on your computer like financial documents, email, digital photos, music and more. Unfortunately, computers are vulnerable to hard drive crashes, virus attacks, theft and natural disasters, which can erase everything in an instant.

Current statistics show that one in every ten hard drives fail each year. The cost of recovering a failed hard drive can exceed \$7,500, and success is never guaranteed.

Insurance for your data.
Mozy is a simple and safe way to back up all the important stuff on your computer. A copy of your data is stored in a secure, remote location for safekeeping, so that in the event of disaster your data is still retrievable.

What makes Mozy so great?
Mozy makes online backup possible for everyone with an affordable, secure solution that's easy to use. Don't just take our word for it. Check out the [news section](#) to see all the nice awards we have received and what the experts are saying about Mozy.

Save Your Stuff

New data backup solutions for your business.
Fortune Small Business (Nov. 07, 2007)

Mozy is fast, simple, and relatively cheap. It gives you another layer of protection in the event of disaster. There is no reason not to use it. [Full Story](#)

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Mozy is the only online backup solution that's been awarded the PC Magazine Editors' Choice Award for 10 years.

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There is no limit to the amount of data you can backup. Whether you backup 1GB or 500GB, the annual cost is the same: \$49.95. Be aware that there is the potential for exceeding your own ISP's down / upload caps though. There is a practical limit and that is imposed by the speed of a Carbonite backup. Depending on how many gigabytes you

choose to backup, the initial backup can take in excess of a week. Subsequent backups target just the new and modified files and are very fast by comparison. Carbonite monitors your computer for modified files and starts to backup them up immediately. In normal operation, your backup is never more than a few minutes out of date.

Carbonite uses little of your computer's capacity when it is backing up and just a small part of your Internet bandwidth, so it doesn't interfere with work.

Carbonite adds dots to files and folders in My Computer to indicate their backup status. A green dot on a file means it is backed up, a yellow dot means pending, and no dot means not backed up. A green dot on a folder means everything within it is backed up, and so on.

Restoring files or folders is as simple as a mouse click. If the computer isn't functioning or has been stolen, the data can be restored to another computer by visiting the Carbonite Web site.

Carbonite estimates that about 600-800MB per hour can be downloaded.

Carbonite is an excellent, non-technical backup solution for the individual with typical needs. Its advantages are many and its only major drawback is the time it takes to backup large amounts of data.

Last year Mozy was acquired by EMC, a company well-known for its enterprise backup products. Mozy's online backup products are called MozyHome (for non-commercial use) and MozyPro. MozyEnterprise, an enterprise version that differs only slightly from MozyPro, was just recently introduced.

Prospective Home users can create a 2GB account to try out the service. It is free and never expires. Since Mozy uses advanced data compression, the account can usually store much more than 2GB of files. It may be all the backup capacity you need. If you need more, MozyHome costs \$4.95 per month for an unlimited account. If you sign up for a year, you get a month free. Commercial users need to use MozyPro; it's more expensive than Home but has some additional features of value in a business setting. For one thing, it will backup network drives. The monthly cost is \$3.95 plus \$0.50 per GB. Thus a 10GB account costs \$8.95 per month. As with Home, signing up for a year gets you a free month.

All versions of Mozy are fast, much faster than Carbonite. The performance you get depends partially on how you configure it but it is influenced more by the upload speed of your Internet connection. Bear in mind that upload speeds are much slower than download speeds on most DSL or Cable accounts.

All versions of Mozy are easy to install and to manage. Backups are fast, even the first one. Subsequent backups do only the new or modified files and they are remarkably quick since Mozy uses block-level incremental backup. If a single paragraph is changed in a 20MB report, Mozy needs to transmit only the blocks that have changed and not the entire file.

All versions of Mozy are more technical than Carbonite but they offer greater flexibility as a result. Most users will figure out the Mozy interface and options in a matter of minutes. More technical, in this case, doesn't mean hard to understand.

MozyHome can be scheduled to backup at a set time daily or it can be configured for automatic backup when the computer isn't being used heavily. For example, it can be told to backup no more than six times a day and only when the computer has been idle at least 30 minutes and the CPU is less than 60 per cent busy. Among the many options is the ability to throttle bandwidth use, to adjust backup speed, and to enable support for backing up open files. If backup speed is reduced, backups will take longer but the computer will be more responsive.

MozyHome will backup Outlook files even when the application is in use. MozyPro can do everything that MozyHome can do and much more. It can backup servers; common file servers as well as SQL and Exchange servers.

Restores can be done in various ways, including right clicking on files or folders in My Computer.

Recommended strategy

Regardless of the online service you choose, it's a good idea to have a current backup on local media as well. USB drives are ridiculously cheap these days, as low as \$0.20 per GB. As a minimum, backup your most important data daily to a thumb drive. You'll still be able to function if you suffer the double whammy of your computer and your Internet connection going down.

Although I see the appeal of Carbonite, especially for non-technical users, I prefer MozyHome. It is only slightly more expensive, it doesn't require a 12-month commitment, and it's much faster and more flexible than Carbonite. For backing up servers in a business, MozyPro is by far the best value I've encountered. Superior solutions are far more expensive.

If you don't care for either Carbonite or Mozy, do not despair. There are hundreds of other solutions to try.

By Issie Rabinovitch

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David Tanaka

David is one of Canada's most experienced technology journalists and hubcanada.com's resident photography guru. For more than a dozen years as a writer, editor and columnist, he has brought readers the latest tech news and trends. Highly respected for his no-nonsense approach to product reviews and news, David also reports on developments in personal computing, input / output and consumer electronics.

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Vancouver school offers YouTube scholarship competition

Vancouver Film School, Canada's largest post-secondary entertainment arts institution, and YouTube recently announced the Vancouver Film School (VFS)/YouTube "What Matters to You" Scholarship Competition. People from around the world will have the opportunity to share their film, animation, or creative pitch in a three-minute video to win a full-tuition scholarship.

Artists from the 19 regions where YouTube has local sites will be eligible to submit their original videos from March 18 to May 9. VFS will then narrow the field to 10 finalists. Between May 20 and May 27, the YouTube community will vote to pick three winners. On May 30, the winners will be announced and will receive scholarships to VFS worth from \$17,000 up to \$52,750.

Launched in October 2006, the VFS YouTube Channel (youtube.com/vancouverfilmschool) has over 17,000 subscribers and is the most subscribed school Channel on YouTube.

"The goal of the VFS Channel on YouTube is twofold: to entertain the world and to show it what our students can do. We've had phenomenal response from YouTube viewers; they want to know how to come to VFS and we want to help them get here," said Stephen Webster, Director of Marketing at VFS.

"A growing number of emerging filmmakers and artists are channeling their creativity to YouTube, building an audience, and generating interest in their work," said Sara Pollack, community manager for film, YouTube.

The three scholarship recipients chosen by the YouTube community will be able to attend any of the 14 entertainment arts programs VFS offers.

Intel introduces Atom line of processors

New chip uses the world's smallest transistors



For a certain segment of computer users smaller is better and Intel's new Atom processor family serves them in two ways. Bridging the gap between notebook computers and PDAs are a class of devices Intel calls MID's or Mobile Internet Devices. This will be one of the Atom's playing fields along with a new category of simplified and affordable Internet PCs that are due on the market later in the year. The second will be as an Atom based Centrino product.

Intel states that Atom "is based on an entirely new microarchitecture designed specifically for small devices and low power." Exactly how low? Atom has a thermal design power (TDP) specification in 0.6-2.5 watt range, according to Intel, compared to around 35 watts TDP for mainstream Core 2 Duo processors. Atom will run at up to 1.8GHz and maintains compatibility with the Core 2 Duo instruction set. Intel says it is its smallest processor to date. It contains 47 million transistors and 11 Atom processor dies will fit in an area the size of a penny.

The Centrino branded design architecture for notebook computers will be carried through with Atom processors. If you follow Intel's processor

road map, this is the product that previously went under the code name Menlow. The Centrino architecture is built around a trio of chips that are optimized to work together to deliver processing, I/O and graphics and wireless functions to the computer. Intel says the radio and graphics chips are thinner and lighter, in keeping with the new smaller Atom processor.

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Software to make taxes less taxing

If your taxes are reasonably simple, if your personal financial data is well organized and you like the DIY approach, tax preparation software can be an inexpensive, quick and intuitive way to file your taxes. Thanks to the Canada Revenue Agency's Netfile transmission service that has been open since Feb. 11, sending in your taxes has never been easier... and it avoids that trip to post office as midnight approaches on the day of deadline.

The interview processes included in many tax prep software suites tries to ask the right questions to get the maximum refund or failing that, to minimize the amount you have to pay. They're still no substitute for an astute accountant well versed in tax law when your return is more complex and involves income from multiple sources, pensions and the like.

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 Windows only (98+)
 Where tax preparation software

packages generally make their money with customers rebuying their updates software year over year in order to get the latest Canada Revenue Agency (CRA) changes to the assorted forms and schedules that go in to creating a return, GenuTax does things a little differently. The version of GenuTax you buy for the 2007 tax year can also be used to file your 2008, 2009, 2010... returns. The company releases new version of its software but users aren't required to upgrade and can use the software they already own to file returns going forward. New tax law updates are provided free of charge. When a full software update come down the pipe, users can choose whether or not to upgrade. What you end up paying for is the new features as opposed to the updated tax regulations.

The software uses an interview process to guide you through completing a return. There's also a streamlined interview process for users who have a good existing grasp on which tax subjects relate to them.

With GenuTax, users can file previous year tax returns, back as far as 2003.

These returns must be printed and mailed however as NetFile is not supported by the CRA on previous year returns. If all your returns were filed with GenuTax, it's easy to import previous year returns and line amounts.

GenuTax allows residents of Québec to file returns with the CRA. However, it doesn't yet support the provincial tax return that is to be sent to Revenu Québec.

QuickTax
Intuit Canada
www.quicktax.ca
 \$19.99 - \$79.99 (2 returns)
 Windows only (2000 +)

All versions of personal QuickTax include only two full returns and up to 18 returns with a net income of <\$25,000. That's probably enough for a primary and spouse return along with any children still living at home. Unless part-time jobs pay a heck of a lot better than I remember. Still, it would be nice to have a few more returns offered to help family or friends file.

It's a user friendly software though, which is probably what makes QuickTax's claimed 3 million users keep coming back year on year. The software uses an interview process and walks users through. It also gives investment guidance for the upcoming tax year to maximize returns. New this year, the "Deduction Toolbox" which highlights deductions you may be qualified for and compiles a list of all the deductions you're claiming.

Of particular interest for small business owners is QuickTax Business Unincorporated which will ask you many of the same questions a good personal business accountant would to help maximize your deductions and write off legitimate expenses.

ImpôtExpert, the French language version of QuickTax helps residents of Québec file to Revenu Québec.

TaxTron
www.taxtron.ca
 \$12.99 (1 return) - \$195 (professional, unlimited personal returns)
 Windows (XP / Vista) / Mac OS (10.3.9+)

TaxTron claims that users can complete their taxes in as little as 10 minutes. A nice thought and perhaps a realistic one for an individual with a T4 and not much else.

The software offers a step-by-step approach to filing returns and uses virtual forms that look a lot like their real-world counterparts.

Users interested in checking out the software can download it for free and complete their return in full. However, to print or NetFile, a paid license is required. TaxTron Family Pack is the

basic software package that goes beyond just filing one return. It allows for filing of up to five returns for \$24.99. In addition, it allows for free filing of up to 15 returns with a net income of \$30,000 or less. The least expensive package offered for an individual return is \$12.99 and called, appropriately enough, TaxTron Individual. In addition to the one > \$30,000 net income return, users can file up to 19 < \$30,000 returns for friends and family.

If you're a Mac user, short of using the online-only returns option that many of these companies offer, this is just about your only option.

UFile
Dr. Tax Software Inc.
 Online only (UFile.ca): \$15.95 (one return) \$24.95 (family returns)
 Software (Ufile for Windows): \$19.99 (Personal, 8 returns) - \$29.99 (Plus, 16 returns)
 Windows only (98+)

Dr. Tax Software Inc. claims to have supplied accountants and tax preparation professionals with the tools they need to complete returns.

Its Ufile online tax return can be had for as little as \$15.95 for an individual or \$24.95 for a family, defined as an individual, a spouse and any dependent children. Individuals earning less than \$25,000 per year, full-time students and Canadians over 60 years of age can fill out and file their return at no charge using the online filing option.

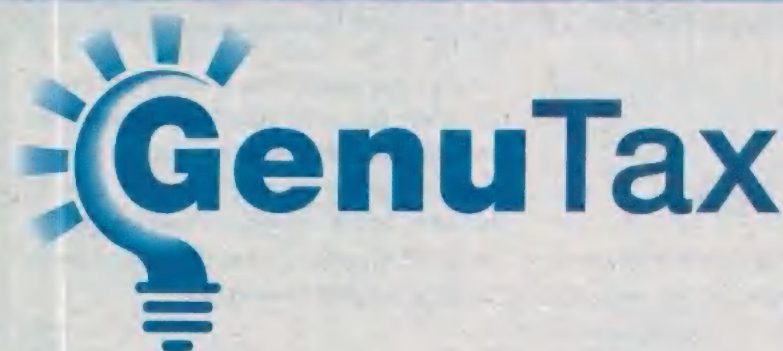
Purchasing the Ufile software (Windows only) costs \$19.99 (eight >\$25,000 returns) for the standard version and \$29.99 for the "Plus" version (16 >\$25,000 returns).

Return preparation is through an interview interface and at the end, Ufile's MaxBack refund analyzer claims to give the filer the highest refund possible or, failing that, the lowest payment possible. The Ufile software / online return only deals with personal returns, including self-employment.

Ufile is the only explicitly NetFile approved individual tax software by Revenu Québec (tinyurl.com/2djghu).

By Andrew Moore-Crispin

The Canada Revenue Agency has determined that no piece of consumer software is allowed to generate more than 20 tax returns. All tax software is subject to these limits. While many tax return software options will allow for free returns under a certain income amount, these returns still count toward the 20 total returns as dictated by the CRA.



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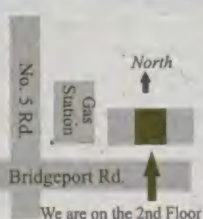
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The Social Revisited

Zune is throwing a party. Maybe people will come this time...

One day several years back, Microsofties sat around a table — dress code: business casual — and said that if Sony could do it (Playstation), they could too (Xbox).

The Xbox, now in its second generation, is a success... at least in



consumer perception. Microsoft's Entertainment and Devices Division is apparently set to break even in fiscal 2008. A minor detail.

One day a couple of years back, the same Microsofties sat around the same table. Where the wall of whiteboards once held vague sketches of the original Xbox, they now had drawings of digital audio players. "If Apple can do it (iPod), we can too." The Zune, now in its second generation, was not such a success. The first device bearing the name was a 30GB player. It was clunky with restrictive format support and an interesting if ill-used WiFi capability. The second generation, however, has grown up and slimmed down.

Navigation is incredibly simple. Moving between different types of content (video, music, pictures or radio) is super easy. Even wirelessly linking up with other Zunes to share songs (with some very restrictive digital rights management (DRM) in place) is ridiculously easy too. That's an important point because wireless

syncing and sharing is the thing that sets Zune apart from the front-running iPod. That and an FM radio that, while a nice addition, isn't likely to be a key buying feature.

The medium is the message...

In keeping with Microsoft's (tragically recent) realization that software and user interface in general needs to be simple if you want people to build a personal connection with their personal computers and devices, the Zune software is simple and powerful. Ironically, it has way less feature bloat than iTunes which has become something of a catch-all program. iTunes started out simple and elegant but has become a bloated and oft times buggy pain in the neck. That is exactly the same Microsoft weakness that Apple has exploited in order to gain mind- and market-share.

Hands on

The updated Zune is a dream to use. The PC-based software that ships with it

is stable, clean, clear and won't necessarily try to take over your entire media life. It links up with the Zune store effortlessly, giving access to 3 million tracks. More than million of these tracks are digital rights management (DRM) free. There's also an all you can eat subscription service that goes for \$14.99 States-side but that yet to be priced here.

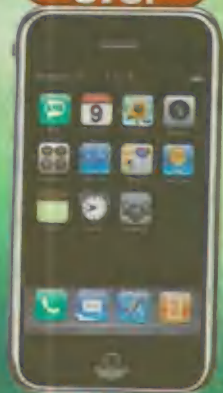
A large, bright screen and a battery that lasts for as long as you and literally the best bundled earphones we've ever had the pleasure of using make the Zune a worthy contender for your "digital lifestyle" dollar.

Microsoft Zune
www.zune.net
80GB
STBD
Screen size: 3.2-inch
Dimensions: 61 x 13 x 110mm (WxDxH)
Weight: 128g
Audio formats: AAC, MP3, WMA
Video formats: WMV, M4V, some MOV

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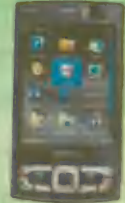


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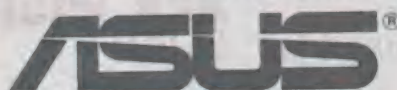
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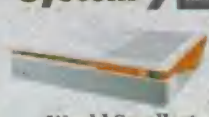
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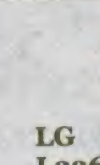
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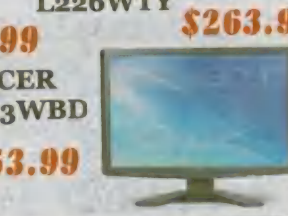
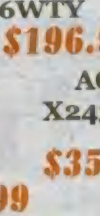
LG L226WTY
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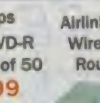
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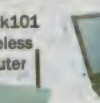
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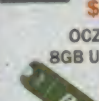
MSI PR210
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 Vista Premium
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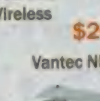
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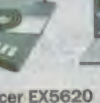
Logitech Lx710
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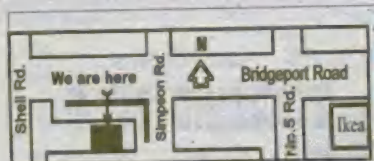
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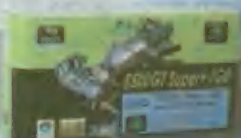
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The Battle has Ended, the HD War Continues

HD DVD, we hardly knew ye...

Conceived in 2002 and flat-out dead just six years later — a mere 22 months after the North American debut of the first consumer-level HD DVD player — HD DVD was ultimately here for a short time, not a good time. Its failure, and in particular the way it failed (Betamax, in comparison, hung in there against VHS for more than a decade), signals once again that those who adopt early had best be wholly prepared for worst case scenarios — especially when they run gleefully into the midst of an unsettled format war. Hands up if you did jump into the HD DVD pool a tad early. I know I did. I picked up a Toshiba HD-A2 back in early 2007 at the then discounted price of \$380. It made perfect sense at the time.

HD DVD was the first high-def option on the scene (beating Blu-ray by several months), and the few HD-DVD movies I'd seen in electronics stores and friend's living rooms just looked so damned good. Moreover, Blu-ray players were

nearly double the price. The scoundrels! Add in Toshiba's heavy-duty marketing job, and the fact that big-time players such as Universal Studios, Intel, Microsoft, and even... ahem, the adult film industry were behind the technology, and the choice seemed obvious.

Content killed the video star

So, what went wrong? What killed HD DVD? Consumer confusion, for starters. When good old DVD first appeared a decade ago, it did so in a united front. There were no decisions to be made regarding which type of DVD technology you'd embrace — you either got on board or you didn't. Furthermore, the advantages — and the physical differences — versus VHS were obvious. It was a disc rather than a tape. Its picture was cleaner, its audio crisper. A DVD disc was slimmer and more compact than a VHS tape, and DVD allowed you to instantaneously jump to any chapter of a movie, without enduring rewinds and fast forwards.

When high-definition disc technology made its way to market, it was, in contrast, stuck in the throes of a format firefight. But apart from the obvious choice of HD DVD or Blu-ray, consumers were also smacked over the head with bewildering, high-tech phraseology and news of performance issues in early players. In addition, the real world superiority of high-def discs over traditional DVDs was very much in question. HD discs looked like DVDs, and they didn't really offer much more in the way of operational advantages. Indeed, high def players still load much slower than traditional DVD players.

But to those with high-end TVs, HDMI connection chains, and seven-plus-channel HDMI-equipped audio amplifiers, the experience was mind-melting. The only question — and it was a big one — was whether you'd bet on the right horse. As it turned out, those who put their bucks on HD DVD didn't.

Off to the races

Blu-ray did have a few apparent advantages from the get go. First, it was more future-proof. Whereas HD DVDs are quite similar to old school DVDs, Blu-ray discs are more revolutionary. Virtually all the key elements are smaller, from the pits in the tracks to the width of the laser that reads them. Data is stored differently too. Ultimately, multi-layer Blu-ray discs can handle 200GB of data versus HD DVDs 60GB. And they're substantially more scratch-resistant, due in no small part to a specially developed coating that HD DVD discs simply can't incorporate.

Still, HD DVD discs were cheaper to manufacture (using, for the most part, existing DVD production methods), and the players themselves were more affordable. HD DVD interactivity was superior, as was its Internet connectivity. As for content providers, the lines appeared to be drawn equally between the two warring factions.

But as the months rolled on, it became clear that content was king. By the time the first Blu-ray players emerged, Sony simply had a better lineup of Hollywood studios behind it. Some studios sat on the fence, but those that made a choice generally looked toward Blu-ray. Similarly, Blu-ray also gathered a more impressive roster of supporting high-tech firms. To some, it seemed that while Toshiba was hoping, Sony was pushing. To others, it was a simple fact of a better, more futuristic technology

— affordability be damned.

Near the end — that is, in the first two months of 2008 — the snowball of abandonment had gained such momentum that it seemed nothing could stop it.

Ready for prime time?

According to online industry publications such as TG Daily (www.tgdaily.com), prices for Blu-ray players have actually been rising marginally in the weeks surrounding HD DVD's demise. Scoundrels and scallywags!

Moreover, Blu-ray players currently at that low end of the price spectrum are far from state-of-the-art. The first generation of Blu-ray players, which make up the vast majority still being sold (and now deemed as "Profile 1.0") aren't equipped with a lot of the cool stuff of which Blu-ray is capable. Stuff like picture-in-picture, Internet connectivity, storage for downloadable content, and the like. Profile 1.0 players are generally older, potentially less reliable, and incompatible with future firmware upgrades.

Profile 1.1 players, which address the picture-in-picture issue, are now being released. But by the fourth quarter of the year, Profile 2.0 players, which promise to offer the full meal deal detailed above plus an unparalleled level of interactivity, are due. The wait should be worth it.

Is Blu-ray the ultimate solution?

But how long will Blu-ray dominate the high-def landscape? Perhaps not much longer than the life span of HD DVD. A likely HD DVD successor may well be Internet movie downloads.

It somehow isn't surprising that Toshiba is fully behind the technology now that its HD DVD days have come to an end. In a recent interview with the Wall Street Journal, Toshiba Corp's Chief Officer, Atsutoshi Nishida, said that Toshiba is already developing technologies in the video downloading market and the computer-to-TV link he envisions as being part of the equation. The Blu-ray/HD DVD battle may be over, but you can expect the war to bring consumers high-def content to continue for some time to come.

By Gord Goble

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In the Lab: Network Attached Storage Drives

Easy file serving at home or the office



In the Lab

For the complete In the Lab article, including hands-on impressions of the NAS drives listed here, visit www.hubcanada.com and click on the In the Lab feature box on the homepage

Consumer appetite for storage is insatiable. In the days of high-def video and other, as yet undreamed digital content, it doesn't look like it will be satiated any time soon.

Terabyte drives (1,000GB) are the latest answer to our rapidly expanding personal storage needs.

Just so I can make it in the annals of history and people that really should know better than to make predictions about how much is enough when it comes to computing power or storage, "I can't see anyone ever needing more than a terabyte of storage."

In truth, we'll figure out a way to fill 1TB without too much difficulty and

we'll start wistfully waiting for petabyte drives (1,000TB or 1,000,000GB) to come along.

Network shares vs. NAS drives

Multiple computers connecting to a central home network is an excellent way to share Internet access among PCs. The traditional home network offers limited file sharing across the network too. For example, in Windows, the central home PC can share its "My Pictures" (or other) folder on the network so that anyone with connection privileges can access the folder across the network. It's far from a perfect solution though. The PC with the shared

folder or folders must always be on (and not hibernating) or the shared folder disappears from the network. There's also a limit to how much users can realistically offer up to be used as network storage and some security issues are introduced when offering up portions of your computer on the network.

Enter NAS or network attached storage. NAS is an ideal solution for shared storage across a home network. NAS solutions generally offer up to 1TB and beyond of shared storage, perfect for sharing and streaming the family's digital content whether a shared music or video collection, family pictures or home movies. NAS drives are also ideal when used as a central back-up facility for computers on the network; many offer simple back-up utilities and in some cases, one-touch backup.

Since your NAS drive runs independently from the computers that access it, any new PCs that enter the home can access the shared storage and any important data held there. For Mac and PC users, it's a simple process. (See sidebar "Mapping a networked share as a virtual drive.")

For Linux users, there's some terminal bashing to be done.

files large or small across the network. However, as they are a network resource, some applications may not be able to use them directly. For example, if your entire music collection is housed on a network drive, you may not be able to access the music directory directly as you would with a physical drive. That is to say, your audio player of choice may not be able to add songs from the network drive to your playlist. Ditto your video player or favourite photo organization software.

Many NAS drives will auto configure computers using a setup disc to map the network share as a physical drive. If not though, mapping a shared drive to act as a physical one in your PC is easy under Windows or Mac (see sidebar).

Networked vs. Direct

Anecdotal evidence suggests that the average consumer looking to expand their storage possibilities without cracking open their PC case will opt for direct storage as opposed to networked storage. Whether this is because direct is easier to set up (though in fairness, networked is very simple too) or because of the price point difference is not clear. Plugging in a USB or FireWire cable seems a lot less intimidating than an Ethernet cable.

Network vs. physical drives

Network drives are useful for sharing

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Windows, Mac OS X

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USB ports: 2
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Linksys Network Storage System with 2 Bays
NAS200
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(WxHxD)
Windows

Mapping a networked share as a virtual drive

Tips for mounting network drive as physical Windows and Mac

Windows:

1. Navigate to the network resource you wish to map as a virtual drive (i.e. My Network Places, choose Entire Network, Microsoft Windows Network and the domain you wish to use). This also works with online resources.

2. Right click the shared drive or folder and choose Map Network Drive.

3. Choose a drive letter. Virtual drives default to Z: and work back toward A:. You can use any unassigned drive letter though.

4. Click Finish and your new virtual drive will open.

or

1. Open My Computer, click on Tools in the menu and choose "Map Network Drive"

2. Choose a drive letter in the top pull-down menu

3. Click Browse to find the network resource you wish to map

4. Click Finish and your virtual drive will open

Mac OS X

1. In the Finder click on GO and select Connect to Server

2. Enter the address of the resource you are mapping (i.e. \\HomeNetwork\Shared_Music). This also works with online resources.

3. Enter your domain name and password for authentication.

4. Your virtual drive will now appear on the desktop and in the file navigation sidebar.



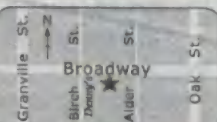
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A Little Piece of Peace of Mind

RAID arrays for safety, security and speed

When it comes backing up your data there are a number of methods you can use that range from simple and inexpensive to advanced with a price tag to match.

In recent years RAID has become quite affordable, and while it isn't as cheap as burning backup DVDs, it offers a robust and incredibly quick replacement procedure that most other backup solutions can't come close to matching. Once the initial installation is taken care of, it's also a completely hassle-free solution. In fact, you'll may even forget that it's there until something goes wrong and it steps in to save your digital life....

RAID has been around for a while but has mostly been the domain of business. However, with the ever-falling price of hard drives, consumer RAID solutions are inexpensive and fairly easy to set up and so are a reality at home too.

RAID arrays come in two major categories: those offering data backup redundancy and those offering a drive

access speed boost. There are also solutions that offer both benefits in one package.

What is RAID:

In the early 2000s, RAID grew very popular among hardcore PC enthusiasts. So much so that as of 2005, most mid-range motherboards come equipped with an on-board RAID controller that supports the major modes of operation. But what exactly is RAID?

The acronym RAID, stands for Redundant Array of Inexpensive Disks (or Drives). In layman's terms, RAID is essentially the use of two or more physical hard disk drives working in tandem to give benefits to your system's hard drive read and write processes. In some cases the benefits can be dramatic while in other situations the point may be that you don't even notice it's functioning (such is the case when using RAID solely for data redundancy).

To be clear, RAID isn't about having a

Types of RAID Controllers

There are two basic types of RAID controllers; Software and Hardware based. Both offer similar functionality, but Hardware based solutions are usually more expensive since they're often discrete PCI, PCI-X, or PCIe add-in controller cards. The main advantages of Hardware RAID controllers are that performance and error-handling is improved and none of the parity work has to be offloaded onto the main CPU of the system (which is how a software-based RAID solution does it).

Further improving performance is the availability of a read/write cache — this is onboard RAM that is dedicated to the discrete RAID controller and used to increase the speed of reading/writing data even further. Typically, dedicated hardware RAID controllers can even support multiple drive types together as well (so any combination of IDE, SATA, SCSI, and Fibre Channel), but this is usually only taken advantage of in enterprise applications.

Software based RAID controllers are broken up further, into OS based RAID and Firmware based RAID. OS based RAID arrays can't be used as a primary drive since they require a standalone drive to boot up the operating system before it can engage the RAID array. Because of this, they're impractical for most users. On the flip side, Hardware RAID setups can be very expensive for personal or small office use.

The solution created was to use a firmware based RAID that operates on a motherboard's standard disk controller chip. In this way the firmware could initiate the RAID array while the computer is booting so that it can load up the operating system, at which point the OS RAID drivers can then take over. It's still a software-based RAID controller, but the functionality is expanded to include almost all of a dedicated hardware solution's features. This is also what the vast majority of consumer-level motherboards use as their RAID solution.

secondary drive to copy data to and from but rather, an additional drive that can be accessed simultaneously with the primary drive. The advantages of simultaneously being able to read and write on multiple drives are few, but the residual pay off can be substantial. One of the biggest strength of RAID is that the speed of HDD access can increased massively. With HDDs often acting as a bottleneck in PC performance, this overall system performance boost can be huge. In fact, depending on the RAID mode used, the write and/or read speed is multiplied by however many drives are running together in your RAID array — two HDDs is twice as fast as one, four are quadruple the speed of one, and so on. The simple reason for this being that, rather than reading/writing on a single drive, the RAID controller reads/writes to each drive concurrently.

There are a quite a few different RAID configurations, but the three major modes are:

RAID 0 (Striped)

Striped drives appear as one in the operating system and the increases in both read and write performance depend on the number of disks. If you have two 250GB HDDs, they'll appear as one 500GB drive in the OS and will perform at twice the speed of a single drive (since both drives are read and written to at the same time.) The problem with Striping is that if one of

the drives fail, everything is lost since the data is fragmented between multiple drives. If Drive A gets corrupt, all the data on Drive B (and C, and D, etc.) is useless as a key portion of the data is lost with the single drive failure.

RAID 1 (Mirrored)

Mirrored drives appear as a single drive in the OS. Because the data is written to both drives together, the write performance doesn't see any improvement, but read speed sometimes receives a boost (depends on the RAID controller) since both can be read from at the same time. Mirroring writes the exact same data to both drives simultaneously, creating a complete, real-time, on-the-fly backup in case of hard drive failure. The only problem with mirroring is that it's only useful in the case of physical hardware failure. If your primary drive fails due to a virus/spyware/worm, the secondary mirrored drive will also fail, because it contains the exact same information (viruses and all). If two 250GB drives are set up in a mirrored configuration, they will appear as a single 250GB volume.

RAID 5 (Striped with Distributed Parity)

Requires a minimum of three physical hard drives and offers the performance of RAID 0, but has redundancy in the form of distributed parity. One drive can fail, but operation of the array will continue as normal (with a slight

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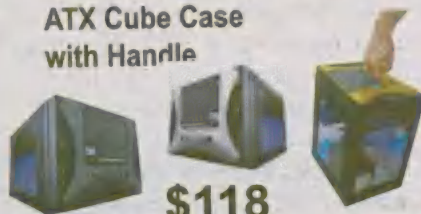
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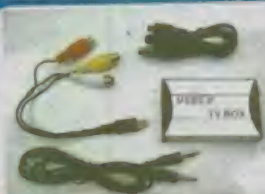


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performance decrease until the broken drive is replaced). When the new drive is installed it will be rebuilt using the parity data saved on the other drives in

the array. Unfortunately this mode is expensive because it requires more than just two drives, but also because it usually requires a discrete hardware

based RAID controller (usually not integrated into consumer-level motherboards).

Another interesting fact is that these different RAID modes can be nested into each to combine the benefits of each. For example, a RAID 1 + 0 array would consist of four hard drives running as two sets of Striped/RAID 0 arrays. This way you would get the speed of striping for both reading and writing, but if any of the drives failed you would have a back up to put in its place due to the identical RAID 1 array.

For the sake of brevity, the purpose of this article is to emphasize RAID 1 (mirroring) since its function and implementation is very straightforward and its benefits for backup purposes are crystal clear. When using RAID 1 you'll have two of the exact same hard drives all the time. If your primary drive ever fails, you can simply swap it out with the working one (the mirrored backup) and you'll be up and running instantly as if nothing ever happened.

What's involved:

The most important step is to read through the 'Onboard RAID' section of your motherboard's manual. This may seem like a cop-out on our part, but the truth is, RAID controllers on consumer motherboards can differ greatly and as such, require different step-by-step instructions. With that said, for your typical RAID 1 array you'll want two equally sized hard drives that use the same connection interface (e.g. SATA.) Ideally you'll want to get two drives of the same make/model to avoid any potential compatibility issues (though they are rare, they're still possible). However, the only hard and fast requirement is that they share the same interface that your motherboard supports (again, refer to your motherboard's manual).

If you already have two hard drives laying around, but they're different sizes, you can still use them in a RAID array, but the bigger drive will automatically be limited to the size of the smaller one (If you have a 320G and a 250GB, both drives will be limited to 250GB.)

Most motherboards have two or four (or sometimes more even numbered sets) HDD connectors allocated specifically to RAID operation. Obviously these are the connectors you'll want to use as they're the ones associated with the motherboard's onboard RAID controller. Often the RAID BIOS is disabled by default so any HDDs connected to the RAID specific SATA-ports will be seen as two regular, standalone drives until you enable RAID functionality. It's important to note that the RAID BIOS is often times separate from your motherboard's BIOS.

Sometimes enabling RAID requires that you physically switch a jumper on the motherboard itself; again, this is why you'll want to read your motherboard's manual.

When you enable it, you'll want to (re)enter the RAID BIOS, but this time you'll be able to set the parameters of your RAID array. Parameters include things like RAID mode/level (RAID 1 is mirroring), fragment size (for striping), and so forth. Generally, the default settings will be fine for most users, especially if you're using RAID 1 since the settings won't improve performance as the drives will be operating in a standard operation.

After the parameters are set and saved, you'll have to format the drive(s), load on your OS and install drivers as per usual. It's a pretty unambiguous process — two drives, connected to the proper ports with RAID functionality enabled, and then commence with normal rebuilding of the OS. After that, you'll be able to swap your primary and secondary drives, essentially avoiding any major downtime.

Conclusion:

The beauty of RAID is that, depending on your budget and how crucial your data is, you can create a solution that offers you a physical form of redundancy. If you have the money and appreciate the impressive speed advantages, RAID 5 may be a worthwhile redundancy solution to look in to. Similarly, if you know you won't be keeping any important data on that specific computer or if you have another back-up solution in place, doubling your hard drive read/write speed with RAID 0 will allow you to load up programs faster than ever before.

Whereas a lot of issues in software can be alleviated with preventative measures and other applications (like anti-virus software), nothing other than physically backing up your data can help you in the event of a hardware failure. Using mirroring grants you a second chance with what would otherwise be a dead end. Mirroring gives you not only a completely rebuilt hard drive with every bit of information still intact, but also gives you an instant solution to what would otherwise be a crisis. Not bad, for something that's probably already on your existing motherboard.

By Mike Palermo



Chad Sapieha

Chad Sapieha is a Toronto-based freelance journalist specializing in consumer technology, including video games, computers, and home theatre components. He spends his days at home with his young daughter, who enjoys helping him test not only games and gadgets geared for toddlers, but also the durability of devices never intended to come into contact with a curious three-year-old.

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Power Pellets: Spore Hits the Home Stretch

Years of anticipation are finally over

After years of delays, Maxis finally commits to a firm release date for its long overdue, ridiculously hyped, and unabashedly odd simulation game. Can it possibly live up to the reputation that has preceded it?

After years of waiting, Maxis Software and its publisher Electronic Arts have finally confirmed that Spore, a PC game that has been subject to almost unparalleled amounts of pre-release publicity and anticipation for several years, will finally reach consumers on September 7 this year.

The game, which will provide players control over the evolution of their own unique species, was first unveiled to critics and gamers at the video game trade show E3 in Los Angeles in 2005, where it captured imaginations and received countless awards for innovation and design. It was at the show again in 2006, where it won many of the same awards all over again. It appeared once more at the event in 2007, yet again garnering plenty of acclaim, and it will undoubtedly show for a fourth time at this July's conference.

Typically, games with such long and publicly scrutinized development cycles eventually lose the faith of consumers. People either begin to suspect that the game suffers from some issue that has its developers terminally vexed, or they simply lose interest, believing it to be one of those titles that's perpetually just over the next hill. But, amazingly, Spore's hype has simply grown year after year, with more gamers talking about it every day and more articles (like this one) being written about it with each passing month.

How has just the thought of this game, which lacks an established brand and is without predecessor, managed to captivate us for so long? Much of the responsibility goes to its mastermind, developer Will Wright, who earned the respect of both the industry and gamers with his almost foolishly successful SimCity and The Sims games. He shares company with an elite group of PC game designers, including Sid Meier (Civilization), Peter Molyneux (Populous), and Cliff Bleszinski (Unreal) who command the attention and



respect of the gaming community. Anything these game gurus work on is destined to be both closely scrutinized and eagerly anticipated by their fans.

But credit must also be awarded to the game's original premise. In Spore, players control a species through all stages of its evolution, beginning at the cellular level and moving all the way along to become a space faring society. Each phase of evolution will apparently deliver startlingly different types of play, from simple arcade-like action to complex, open-ended society simulation. Players will purportedly have extensive control over their species' physical appearance and behaviour via in-game events and decisions, making their species unique to them. Plus, each player's species will allegedly be sent back to Maxis' servers where it could be used to help "pollinate" other player's worlds.

It all sounds quite bizarre and rather complicated. However, Spore's designers claim that the game is so

intuitive and that it has such simple controls that players of almost any skill level will be able to jump into Spore and start playing in minutes with little difficulty. Indeed, much like Wright's previous games, Spore seems poised to sell millions of copies to players of all ages, both genders, and every level of gaming experience.

Still, there are some unavoidable concerns. First off, can it possibly live up to its hype? If it doesn't completely change the way we look at games, as the press has spent the last three years claiming it will, there could be some backlash from the gaming community. Keep in mind that competing developers have had a long time to analyze the sort of play Spore promised back in 2005 and create their own imitations in the interim.

There's also the very real possibility that the game could seem technologically dated. There have been countless advances in the fast moving world of PC graphics over the last three years—not the least of which is Microsoft's new API, DirectX 10—and whether or not Maxis has kept their game abreast of these changes during its lengthy development process remains to be seen.

But this discussion verges on academic. All the speculation will — finally — soon be over. In a few short months we will know whether Spore's ballyhoo has been justified or if the breath we have been collectively holding for several years was for naught. For what it's worth, I think we're in for a treat.

By Chad Sapienza

The Club

Publisher: Sega **Developer:** Bizarre Creations **\$49.99** **Score:** 3/5

Review rig: Windows Vista; 3.0 GHz Intel Dual Core processor; 2GB of RAM; 512MB ATI Radeon X1900 XT graphics card; displayed at 1280 x 720 on a Dell 2407FPW 24-inch LCD.)

The Club is the sort of title that gives the video game medium a bad rap among social conservatives. It's not the most violent game ever made (though not for lack of trying). Nor is it the most profane or lewd. The problem is its commentary on our (meaning gaming) culture, which seems to be that all we need to have a good time is a little purposeless ultraviolence.

The game's objective is simply to kill as many human targets as quickly and with as much pizzazz as possible to achieve a high score. There's a threadbare plot explaining why we go on all of these ruthless rampages (it's part of a bloodsport played by an exclusive and highly secretive club), but there's not much more to it than what's printed in a few sentences in the instruction booklet. Apparently, the developers figured that a coherent narrative would only get in the way of all the murdering.

The tricky thing about reviewing a game like this is that the action is competently architected — and, admittedly, kind of fun. Taking control of one of eight bloodthirsty characters (one of whom is named Killen, which in itself says a lot about the game), we rush through dozens of small but expertly designed maps, cinematically bursting through windows and doors as we use rifles and grenades to run up as many consecutive kills as possible before a combination timer expires.

The design is difficult to criticize; The Club's fast paced, score-based play can make for a challenging experience. And with half a dozen single player modes and a few more that can be played online, there's enough to keep people shooting for some time. It's just a shame that Bizarre Creations couldn't have figured out some way to provide a better context to justify — or at least explain — the game's bloody action.

Chad Sapienza is a Toronto-based journalist and frequent contributor to a variety of North American news, technology, and lifestyle publications.



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In the Field: Trial by Fire

Preliminary report of the Olympus E-3



It could have ended badly, but the E-3 came through and kept me out of trouble. As well as being a writer I do some commercial photography and an E-3 loaner arrived from Olympus a week before I was to fly to Vancouver Island on a one-day photo shoot.

Normally I wouldn't take unfamiliar equipment on a job but I'd done the same assignment a year before and the E-3, along with the 12-60 mm f2.8-4.0 Zuiko zoom lens, an HLD-4 vertical grip and the FL-50R flash unit seemed an ideal fit. So I threw caution to the wind and went with it. The happy ending to the story is that the camera performed like a thoroughbred and the client was very happy with the work.

The case

The job was basic photo illustration — of students conducting science experiments. In all there were around 30 setups; some with and some without a neutral grey backdrop. I used the FL-50R flash mounted on a stand and bounced into an umbrella as the main light and a circular reflector to balance. My drill was to move the backdrop in or out, set up the flash and reflector for a one or two-person setup, shoot it, then move to a different lab station and repeat the process. Because of scheduling issues, we had to finish by early afternoon so we shot steadily from 8 am to 1 pm, took a short lunch and then finished.

I had just one battery and wasn't sure if it would last all day, but thankfully the HLD-4 vertical grip comes with a battery holder for six generic AA cells, so I had backup — which I didn't need because the single battery easily held up for 400+ shots.

I was constantly moving the lighting and the Olympus wireless RC flash system was a joy to use. The E-3's built-in, pop-up flash doubles as the wireless commander for flash units like the FL-50R and the system is quite versatile, although not unique for cameras of this calibre. You can select one of four communication channels and set up three separate banks of wireless flash units with different exposure modes and power levels. One possible limitation is that you can't use the pop-up flash simultaneously as a flash and a wireless commander — it's one or the other.

In the shots without a grey backdrop, I wanted the lab to be slightly underexposed in relation to the subject. This was almost too easy to set up: dial back exposure to -1EV, take a test shot

and then tweak the exposure and flash compensation levels until the subject and background were in just the right balance.

The E-3 incorporates an 11-point autofocus system which is a big improvement over the three-point system Olympus uses on its other SLRs. When paired with the 12-60 zoom it definitely is sit-up-and-take-notice fast. The ability to choose any of the 11 points as the focus point was very useful, since the precise focus point — a beaker or test tube for example — was usually in the lower third of the frame and 30 cm or so in front of the student models. I wanted portrait and landscape variations for each setup and it was easy to adjust the focus point as necessary.

Incidentally, the E-3 doesn't have a dedicated focus-assist lamp, but uses the pop-up flash, which means you have to raise it in order to get to this feature. The flash sends out a weak stroboscopic burst that lasts about a second. It works fine but the rapid flashing is more disconcerting than the steady glow of the usual focus assist lamp — and you won't need it until the ambient light gets quite dim.

There is a small white window on the front of the camera that looks like an AF assist lamp, but in fact it is a white balance sensor. I used auto white balance and found that it worked well in the mixed lighting of fluorescent lighting and daylight balanced flash. Only the skin tones of one student with very fair complexion was a tad magenta. Because I shot everything in RAW, adjusting it after the fact was not a big deal, but I could also have tapped into the E-3's white balance system, which is quite flexible. You can set WB by the usual categories like daylight, incandescent, etc., or by specific Kelvin temperature. Then you can tune the balance both along the amber-blue and green-magenta axes using the WB compensation feature. Furthermore you can use WB bracketing, which saves up to six different versions of an image in which you can independently pick different settings for the amber-blue and magenta-green axes. Again, not unique to Olympus but what you'd expect in a premium product — and with the Olympus you can use WB bracketing with RAW as well as JPEG files.

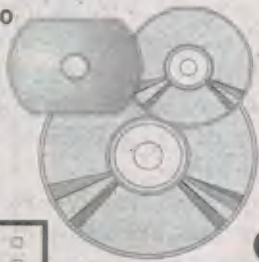
Diversions

I arrived on the island a day before the assignment and that gave me some

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time to walk around with the camera. I was hoping for some dramatic storm activity along the shore, but got only a grey day and rain. Olympus advertises the E-3 as being well sealed and weatherproof, so I was more concerned with my coat slowly soaking through than the rain harming the camera. I found exposure was quite accurate although the low contrast of an overcast day didn't really tax the ability of the camera to handle a wide dynamic range. Colour is exceptional. The 10 megapixel sensor, paired with the sharp lens provides high detail and very good local contrast. I was also happy with some gulls in flight shots I captured, thanks to the good autofocus tracking and the built-in image stabilization.

One of the E-3's highly publicized features is the double-articulating LCD screen which, when paired with the Live View mode, provides additional utility that a fixed screen can't. A side benefit is that you can park the screen facing inward when you don't need it, which protects the glass surface.

But truth be told, I haven't used it much as much as I thought I would, and the main reason is because the E-3's optical viewfinder is such a joy to use. It gives 100 per cent frame coverage and the 1.15x viewfinder magnification nullifies the effects of the smaller (compared APS) image sensor. I had a Nikon D300 on hand to compare it with, and while the aspect ratios are different, the through-the-eyepiece experiences are both highly satisfying.

As with most high-end cameras the issue of electronic noise from high ISO settings is well under control in the E-3. For critical work, I'd be comfortable going to ISO 400 or maybe 800, which is a two-to-three stop

gift. Combine that with the two or three stops you gain from the built-in image stabilization and the fast f2.8 lens and you get a lot of help for hand held shooting as the light gets dim. The E-3 has an ISO-Auto Set feature that allows you to set the upper limit the camera will use on Auto-ISO. This gives you a handle to control how much high-ISO noise you are willing to live with.

Controls

There's always an underlying issue of instrument vs. user when assessing usability: do I not like something because it was poorly designed or implemented; or because I don't know the instrument well enough or because I'm used to doing it differently on the camera I usually use? For that reason, usability has to be somewhat personal, and what applies to me may not apply to you. For the most part I found the E-3 a pleasure to use. In a relatively stable environment like my photo shoot example, it wasn't hard to learn the handful of controls I needed, and then get on with the job. The last thing you want is to be constantly trying to remember how to change a setting. I didn't like the way some things were implemented or the placement of some buttons, but it was easy enough to adjust.

Like all electronic cameras the E-3's complete feature set is controlled by a series of menus. These are grouped into four main ones for shooting and one for playback. For general control the E-3 uses a common method of main dial controlled by your thumb, sub-dial controlled by your index finger and buttons to access specific settings. There are three buttons on the left side of the pentaprism that have dual functions — twirl

the main dial for one and the sub-dial for the other. A well-placed Fn button (right at the tip of your thumb) is programmable, so that you can assign the control you use most often to it. The buttons are well labeled, so you can find what you want just by scanning the camera and you can monitor the adjustment both in the viewfinder and on the top mono LCD panel.

But the E-3 implements a third way of getting at common settings. The Info button brings up a screen called the Super Control Panel, and you can highlight one of 18 common settings (ISO, White Balance, Exposure compensation, colour space, etc.) using the four-arrow cursor pad and OK button and then use either the main or sub-dial to alter the setting. The Super Control Panel also appears when you hit one of the function buttons. Very slick.

Conclusions

Colour: beautiful. Resolution: easily good enough for commercial illustration work. ISO noise: gain three stops with little penalty. AF: quick and precise. Usability: gets better with use. In other words, so far so good. I've barely gotten into this advanced instrument but nothing too raggedy has reared its head. The camera and lens combo is heavy, but well balanced. It's well mannered in a controlled interior setting; we'll have to see how it stands up in the wild.

By David Tanaka



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An Advanced Home Network

Wired for sight and sound... wirelessly

The humble router is the backbone of your home network. It does its job with neither accolade nor thanks. It pushes packets to and fro, allows you to share files between laptop and desktop, shares your Internet connection, gets your Wii online with a bare minimum of effort and more. It does it so unobtrusively that we can be forgiven for forgetting that it's there.

Perhaps the time has come for your lowly 802.11b router to shuffle off in to the sunset. An 802.11g router still has life in it yet but even here, moving up to the "next big thing" offers an impressive boost to transfer speed and range — increasingly important as our living rooms come online and we look to stream media from a central server to locations all over the house.

Key benefits

Perhaps the biggest benefit of the 802.11n spec is the fact that, right out of the box, it's up to 10 times faster than existing wireless standards when connecting with other 802.11n devices. Because it uses a multiple input, multiple output scheme (MIMO), it can layer network traffic on network traffic without the confusion that can plague previous spec routers.

No need to upgrade your other devices... yet

With 802.11n, 802.11a/b/g devices are fully compatible and unlike previous changes to 802.11 spec, users don't have to choose which mode to broadcast in. Where 802.11g routers offer mixed (802.11b, 802.11g) compatibility mode, it makes for a slower connection.

Setting it up

We approached Linksys to lend us a full wireless product suite; the company is putting a pretty big focus on its 802.11n products. We received the WRT600N router, WEC600N ExpressCard adapter and the DMA2200 Media Center Extender with DVD player, along with the NAS200, featured in this month's In the Lab test.

Dual-Band Wireless-N Gigabit Router with Storage Link WRT600N \$279.99

According to the Linksys, WRT600N actually uses the signal reflections that would confuse earlier routers to boost the effective wireless range of the device. It also claims that the further away from the access point the client is, the more speed advantage you get. In short,

it has the potential to be an excellent solution for getting your living room or den online when your DSL or cable connection comes in at the opposite side of the house or even upstairs.

The WRT600N router has a USB port on the back; something we've been looking for in a router for some time. With it, you can share an external hard drive across the network (including mapping it as a virtual drive so it acts like a normal hard drive on any computer that's allowed access) or a USB key. Paired with good backup software (not included), this could be a full backup solution.

Setting up the router is simple; the bundled software takes care of the most important issues, guiding users through step-by-step. Once the initial configuration is complete, you can drill down a little deeper in to the device settings via the familiar browser-based control panel. Within the WRT600N control panel though, you'll notice a few new and expanded options. Quality of service (QoS) settings are much improved, allowing for more granular access to how devices on the network are prioritized. This is key if you're a VoIP user; traffic to and from your VoIP router can be prioritized so that the up and down stream from a BitTorrent download, for example, doesn't interfere with the quality of your phone call.

A new "Storage" tab that allows users to administer access to a storage device connected to the router via USB. There's also a UPnP (Universal Plug and Play) server option if you have other UPnP network devices at home. You'll also find an FTP server option. Both of these are disabled by default.

Media Center Extender DMA2200 \$249.99

With this package — assuming there's a Windows Vista Media Center PC on the network — it's easy to stream content from PC to your HDTV. Connecting via wireless (802.11n) the DMA2200 brings pictures, music and video from the small computer screen to your big HDTV panel without the headaches associated with running Ethernet cable and without running in to the bandwidth limitations of an 802.11g or earlier wireless system. Using Ethernet is still an option however, as is powerline networking.

Where the DMA2100 is a self contained Media Center Extender device, the DMA2200 adds in an upscaling DVD player and an optical audio connection (Toslink). Round the back, connection options abound: HDMI,



Dual-band Wireless-N ExpressCard WEC600N

component, S-video, composite video, coaxial audio and good old fashioned RCA.

Once the simple and painless initial setup is complete, you can stream a majority of popular audio, video and picture formats straight to your high-def set. MPEG-1, MPEG-2, XviD, H.264 and WMV9 video codecs are present and accounted for. It supports WMA and WMA Pro (naturally) PCM, MP3, Dolby Digital AC-3 audio formats and standard picture formats like JPEG, BMP. In other words, just about everything in your collection should play without issue, though there are a few formats that might leave some users out in the cold.

The look of the device is subdued. It's longer than it is wide which in my opinion, is a good thing. Its face is simple and black and the only hint to the fact that it's more than a simple DVD player come in the form of three screw-on antennae at the back. There are obviously not required if connecting to the network via Ethernet.

As a simple — and perhaps more important, quiet — means of getting your digital content from PC to TV, the DMA2200 is a winner, despite its exclusion of a few video, audio and picture formats that the more vanguard might use.

Dual-Band Wireless-N ExpressCard WEC600N \$89.99

This ExpressCard-format 802.11n wireless adapter raises an interesting point; there are, as yet, not many devices on the market that are 802.11n-ready, and no notebooks that we've heard of. Your Centrino or other 802.11b/g notebook will be able to connect to your 802.11n network but won't enjoy the speed boost. For that, you'll need a PCMCIA or ExpressCard format 802.11n card. That's the price of early adoption. If 802.11n reaches the ubiquity of other 802.11 standards, expect to see notebooks and a range of other devices sporting on-board connections. Until then though, no dice. 802.11n cards can, however, connect to any network, whether a/b/g or n.

As connection cards go, Linksys' solution is good; it only juts about 25mm out from your notebook chassis and as such, is fairly unobtrusive. It runs on the 2.4 and 5GHz bands to avoid network congestion in heavy traffic areas. Within the confines of your 802.11n network — less confined than with other WiFi specs — the card takes advantage of MIMO technology to give an appreciable boost to file transfer speed across the network; perfect for large file transfers or streaming media.

By Andrew Moore-Crispin

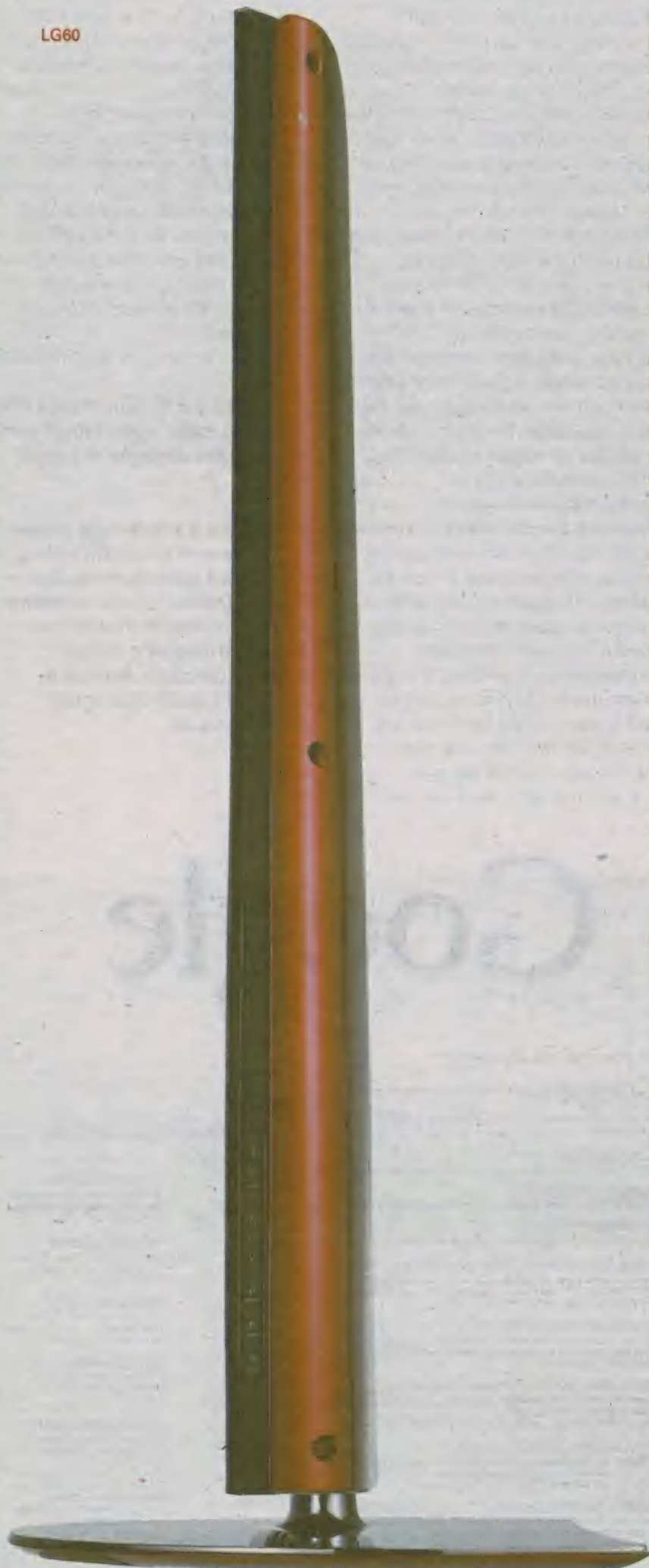
Media Center Extender DMA2200



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A look at what's in store and what's in stores...

LG60



In Toronto recently, LG was showing off the latest in its consumer electronics and appliances lines. The event itself very much mirrored what LG was showing at this year's Consumer Electronics Show (CES) in Las Vegas, but afforded a chance at a closer look at the products and a chance to see (and hear) them perform away from the madness of the show floor.

Frank Lee, Public Affairs Director for LG led us through the showcase and explained what consumers can expect to see on retail shelves in 2008.

Where previous years have seen a discussion of which flat panel technology is better, LCD or plasma, this year's discussion focuses more on the technology that lies beneath. Specifically, the discussion (from many manufacturers) will focus on 120Hz refresh rates in direct view displays. Traditionally, flat panel displays have had 60Hz refresh rates which translates to 60 frames per second (FPS). Given that movies are generally shot at 24 fps and knowing, as we do because we paid close attention in grade six math, that 24 does not divide evenly in to 60. The result is an almost-but-not-quite invisible jitter when converting a 24fps film to a 60fps panel. Now, because we were so studious, we also know that 24 does divide evenly in to 120 (1:5). 120Hz panels can display 24fps content (read: just about every piece of film from the last century) without any funny math, otherwise known as 2:3 pulldown.

The result is a much smoother picture, perfect for the fast action in some movies, video games and sports. The effect is especially noticeable with text scrolling on screen.

It is difficult to differentiate products in the home theatre space with just tech specs; the differences between what one manufacturer and another at about the same price point offer is often minimal. Lee's advice is tried and true: see which panel looks the best to you in the store; mess with the colour settings to find the display that suits your needs.

LG is differentiating itself in part with design. Its LG40 HDTV with built-in DVD in sizes of 26- and 32-inch is designed with the bedroom in mind, Lee says. Minds out of the gutter; he's referring to a more avant garde design. LG research shows that Canadians appreciate attractive and cutting-edge design in consumer electronics... but we tend to go for the more subtle look when outfitting our living rooms. In the bedroom, we're more wont to take design risks. The LG40 fits the bill with its red stand and panel highlights and it's part of an 'art nouveau' line. It is

designed with the bedroom in mind; it uses the invisible speaker technology that many sets in the LG line feature and also has an on-board upscaling DVD player.

The LG60 LCD panel is perhaps the jewel in LG's display technology crown. It sets itself apart by adding a little design flourish in the form of a red and black design scheme that wraps around to the back of the unit. An LED lit ring in the bottom centre of the panel does absolutely nothing save serve as a focal point of the panel's slick design... even when the panel is off.

As with several panels in LG's line, the LG60 features hidden speakers that keeps the bezel size down (Lee says the bezel will all but disappear in the next couple of years). A unique approach to sound on a flat panel, the face of the display acts as the speaker membrane; it's the same technology that's used in ultra-thin speakers. In our brief look at the technology, the sound it produced seemed a little thin but might suffice in a pinch. Flat panel displays should be paired with a stereo system ideally, in any application. And no, the screen / speaker technology doesn't cause the screen to vibrate visibly... that wouldn't make for a very good viewing experience.

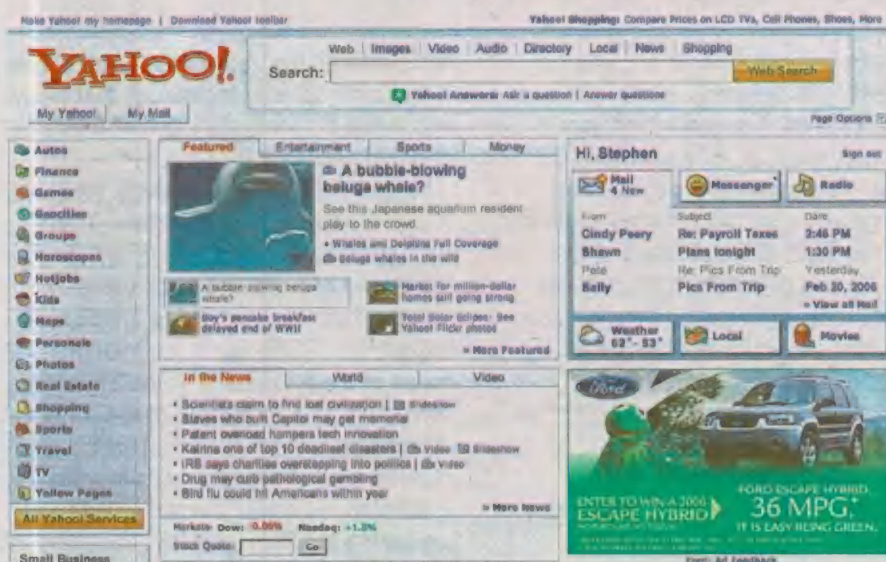
LG is the only manufacturer on the market that deals in HD-DVD / Blu-ray combo players. Following Toshiba's recent announcement that it was killing HD-DVD, the price of the BH200 Super Blu player was cut from \$799 to \$499, just in case there's anyone out there that had time to build an extensive HD-DVD collection.

Saving the best for last... the LG90, LED back lit panel brings the truest blacks we've ever seen on an LCD. LG has so much faith that it's submitted the panel for THX picture certification. LCDs traditionally haven't been considered for certification because they can't create true blacks. By allowing a portion of the 3,000 LEDs that back light the screen, the panel can create the true blacks that have evaded LCD for so long. The LEDs are arranged in "sectors" which can be turned off when the portion of the screen they're lighting needs to display black. It is a simple concept with an impressive result. Lee says the numbers aren't really in but that LG is calling it a 1 million to one contrast ratio.

By Andrew Moore-Crispin

Appeasing the Search Engine Gods

Does your site need to be listed as number 1? Should you even care?



Part 1: What was, what is and what will be

On January 19, 2008 the Web site for Performance Diesel Injection went live. A new business located in Markham, ON, Performance Diesel services a very specific segment of the automotive industry. With over 20 years of personal experience in the industry, owner Giles Gallie felt that having a Web site was essential.

"There are a lot of competitors out there," says Gallie. "I felt it was important to be ranked at least on the first page of a Google search. I would say that our site is a big part of our marketing efforts."

This view is common among many business of all sizes and industries. Even individuals who want to be known for their books, accomplishments, or personal ideas believe that their ultimate success lies in the results of search engines.

This fixation with search engine rankings has led to an entire industry of companies, self proclaimed gurus, and consultants eager to show anyone willing to pay their fees how to not only be listed as number one, but perhaps even one through ten.

To fully understand where this

obsession started, let's rewind a few years. In the mid 1990s, HTML pages started pouring into what was then called the World Wide Web. Search engines such as Yahoo!, AltaVista and Lycos scoured the Web with crawlers, mini programs that gathered data and sent it back to the search engines for indexing. Yahoo!, in addition to using crawlers, also manually indexed data which many users felt provided more relevant search results. (Yahoo! ceased manual indexing in 2002, choosing instead to work with Google's automated indexing methods.)

These crawlers looked for specific items such as links, photos, text and meta tags. Entering certain words in a search engine would bring up a list of sites that the engines felt most closely matched the search criteria.

By 1997 Web developers had begun to realize the importance of search rankings. While pay-per-click advertising was still years away, getting high rankings was seen as a key element to the success of a site solely from a marketing perspective. At the time, it was hard enough to convince many businesses to invest in a Web site, less so if no one would actually see it.

The use of meta tags quickly

developed into the tool of choice. As more search engines developed algorithms to sort and process sites by relevance, the key words contained within the meta tags began to play a more influential role. Developers had the power to strongly influence how their sites would be listed in search results.

Key words that were not reflective of the actual content often resulted in skewed search results. Deceptive meta tags resulted in sites that quickly became a thorn in the side of every search engine who relied on effective results to attract visitors.

In 1998, Larry Page and Sergey Brin founded Google, a search engine that relied on a new set of algorithms. The result was listings that mathematically rated sites by relevance rather than solely on developer's code.

During this time, developers discovered that sites with links generally ranked higher than sites without. This resulted in the next "tool" to increase rankings. The creation of link farms provided an opportunity to have sites linked to dozens of other "sites."

Companies would sell links to bogus or virtual sites and have other sites link back to you. Like the key words that were so effective in the past, the search engines got fooled again.

But search engines never rest. With

their survival dependent on reliable, relevant and accurate results, their highly secretive algorithms were, and continue to be, modified and updated.

Which brings us to today. A population of Web developers, users, and marketers hungrier than ever to reach that status of number one in search results. And with that a new set of tools and companies that promise to do it.

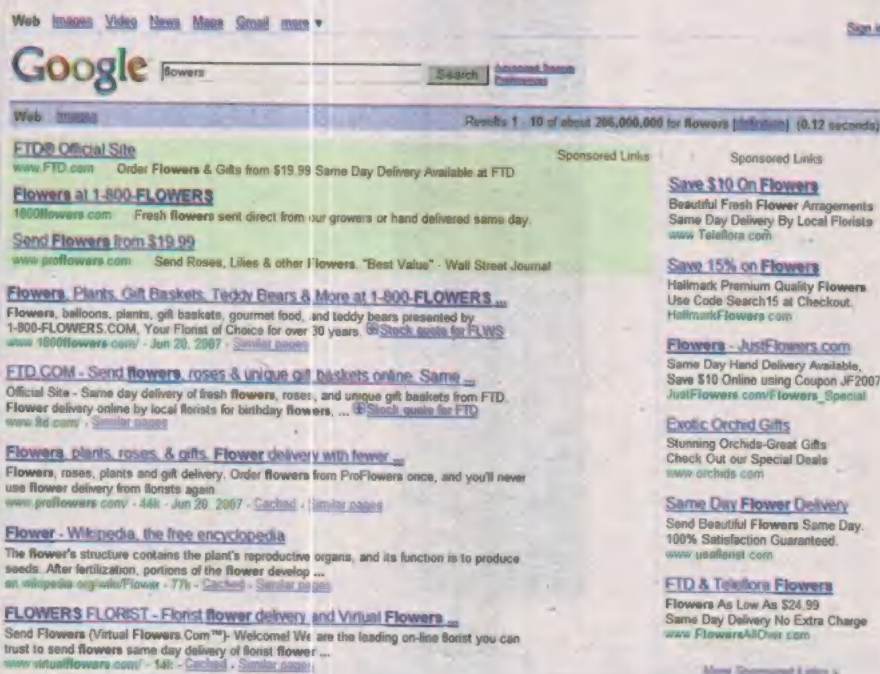
The question is, are these legitimate tools that truly add to the effectiveness of search engines, or just another set of tricks for the purpose of creating Google food?

By Marc Gordon

Next month: part 2 - Boosted page ranks and search engine results through social network linking. Innovation or Internet folly?

Marc Gordon is a professional speaker and the owner of Fourword Marketing, a branding and marketing firm located in Thornhill, Ontario. Fourword specializes in helping businesses create a brand identity and developing effective marketing campaigns. Marc can be reached at 416-238-7811 or visit www.fourword.biz.

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The Ongoing Photographic Problem

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compression. In both situations the net result is a larger file size for each image. For example, a 10 megapixel image saved in RAW format might be 12MB; as a high quality JPEG it might be 6MB; while a regular-quality JPEG might be just 2MB.

If you have been shooting digitally for a while, you probably realize that it is not hard to take dozens or even hundreds of exposures just tromping around your favourite familiar places. Imagine how much more you'll see and want to photograph in a far away land. The last thing you want to face when you hit upon that once in a lifetime photo op is the flashing "card full" message on your camera. If you are going on a two week vacation to an exotic place, the thought may cross your mind: 'how many photos will I take?' Will it average out to 20 a day or 200 a day?

Based on past trips, I've estimated the most I'll likely shoot in a single day and simply carry enough memory cards to meet that volume, plus a bit more for a cushion. That takes care of one day, but then what? Short of buying enough cards to serve you for the entire trip (which can be an expensive solution), you have three other options: digital wallets, notebook computers or an online storage solution.

Digital wallets are essentially battery-powered hard drives with an onboard card reader. They are light enough to carry with you and have enough battery capacity to download images from a few cards. They vary in capacity and features. Units like the Epson P series or Jobo GigaVu are full multimedia players with gorgeous colour screens that allow you to preview images and support the viewing of a number of RAW formats. At the other end of the



Jobo GigaVu

spectrum are units like the Jobo Giga One Ultra, which are for storage only, with no image playback screen, just a mono LCD for menu navigation. The latter category trades the ability to view images for lighter weight and lower cost.

Digital wallets aren't perfect field storage solutions, although they continue to improve. Because they contain mechanical hard drives, they are vulnerable to shock. If you drop one on a hard surface like a sidewalk or have one tumble down a rock face, you might be kissing goodbye to all the images the device contains. Some newer devices contain shock protection which lessen this danger. This can be either an accelerometer-based circuit that senses a fall and safely parks the hard drive heads before impact, shock absorbing materials like gels to surround the drive, or both.

Improvements are also being made to download speed and battery life. For example, I have an older device that takes around 10 minutes to download a gigabyte's worth of images and I might be able to download around 10GB on a single battery charge. Newer devices claim to be able to download a gig in around a minute and have enough juice to download more than 100GB between charges. If you go back to a hotel or somewhere with electricity every night, the download speed or battery life of less capable devices won't be as big an issue.

But if you are going back to a hotel every night, you might consider bringing a notebook computer on your trip. You can download your images to the computer hard drive every night, and since most notebooks have an optical

recorder, you can also back up your images to CD or DVD for an extra measure of protection. If your hotel has high-speed internet, you have a third option: online storage. Online photo sharing sites give you some storage as part of the free service, but substantially more space if you opt to pay for a premium service. However, uploading multiple megabytes of files every night can be a time sink, especially if your hotel's advertised "high speed" internet is more of a marketing tool than a reality.

Just how many photos can a body take on an outing? Here's an extreme case. I recently attended a workshop given by a famous Canadian travel photographer. During the Q&A one audience member asked how many photos he took during a typical assignment. His reply: around 12,000. I did a quick calculation. If he shot highest quality JPEGs at an estimated 4MB per image, he'd need 48,000MB, or around 50GB of storage. If he shot RAW at, say 12MB per image, his storage needs would jump to 144GB. Of course most of us photo enthusiasts are not going to shoot 12,000 images during a single trip — but if we ever want to, we can rest easy knowing that the trail has been blazed for us already.

By David Tanaka

Epson P-5000



Securing Your Sensitive Data

Tips and techniques for protecting your digital life while on the go

Millions of Canadians now tote around a laptop and for good reason: they're relatively affordable, powerful, and we can log online virtually anywhere, wirelessly, thanks to Wi-Fi hotspots and WAN cards.

But what happens if your laptop is stolen, lost or dropped? The unfortunate reality is losing the computer itself may be the least of your worries if you consider the valuable personal or company data that resides on it.

The good news is there is no shortage of hardware and software solutions that — coupled with a bit of common sense — can greatly reduce the chances of losing the potentially sensitive information held on your notebook.

The following are a few considerations. We'd recommend you opt for more than one of these suggestions to help safeguard your data, but perhaps not all five are necessary.

Encrypt it

While third-party options are available, many mobile executives are using Windows Vista's built-in BitLocker encryption technology that can protect the data on the laptop should it fall into the wrong hands. Available in Windows Vista Enterprise and Windows Vista Ultimate, this data protection tool encrypts the entire Windows operating system volume on the hard disk (including user files and system files) so that the data is inaccessible unless the user provides the right

password or biometrics I.D. (see below). Naturally, it's also recommended you password-protect your Windows or Mac laptop upon boot-up in case it's found by someone with malicious intentions.

Lock it

If you must be away from your laptop for a couple of minutes, such as going to the bathroom while in an airport lounge, physically secure your PC with a cable and lock solution. And it doesn't need to be a costly solution: Kingston says its \$45 MicroSaver Notebook Lock is the world's best-selling notebook lock; it features an aircraft-grade steel cable and keyed lock. A hardware lock is best considered a deterrent though. Thieves can get past a lock if motivated (and prepared) enough. Kensington also makes more portable versions of its notebook lock, some of which feature a keyless four-wheel combination lock and a retractable cable.

Copy it

It doesn't really matter which you prefer — recordable discs, USB thumbsticks, external hard drives or online services — but mobile computer users should back-up their important files on a regular basis and keep that backup in a separate place. In other words, not in your laptop bag in case it's stolen or lost, taking your backup along with it. Personally, I have two solutions (you can never be too careful!), both of which use

The sky's the limit

As we've touched on in this article, online back-up solutions are increasingly popular because uploaded files are protected against local threats, such as theft, fire or flood.

Microsoft has just unveiled up to 5GB of free storage per month with its new Windows Live SkyDrive (skydrive.live.com) service. Not only is this password-protected online file storage solution easy to use but you can access your files from any Internet-connected computer in the world, which can prove very handy while traveling.

We also detail a number of other online and offline backup solutions in this issue because the most effective data security solution is the one that works best for you.

encrypted zipped files: one is a 4GB SDHD Flash memory card I always keep inserted into my laptop to store copies of my important work (such as articles newly written on the plane) while the other is an 8GB USB Flash drive I keep in my jeans' coin pocket at all times (just in case the laptop goes missing with the Flash card inside it).

Scan it

Many laptops now offer a fingerprint reader, so you — and only you — can access your important files and folders. Usually this finger scanner is located near the keyboard or just underneath the laptop's LCD screen. Many PC manufacturers are offering laptops with biometric security, such as HP, Lenovo, Sony, Fujitsu and others. Some companies encourage employees to use both a password and biometrics solution. A few third-party fingerprint scanners exist, such as a USB-based model from Microsoft, but the Redmond, WA-based company suggests this accessory be used for convenience, such as not having to remember many passwords on your favourite websites, rather than to secure your company's data.

Secure it

Finally, be cautious of wireless networks when travelling as there have been many instances of fake Wi-Fi networks set up by nasty types in an effort to steal personal, financial or corporate data. Sure, it's tempting to use a free connection your laptop sniffed out instead of paying the hotel's \$10 fee but you may not realize these could be rogue connections set up to steal your data. On a related note, wherever possible, users should log into their company's secured network to send messages or files rather than relying on free Web-based email programs.

By Marc Saltzman



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The Last Byte

Small storage we've known and loved



I was cruising a photo retailer's site the other day looking for cheap memory for my camera and came across an IBM one gigabyte MicroDrive for \$49. My mind immediately flashed back to an IBM briefing I attended several years ago when I first saw the MicroDrive. This was a marvel of miniaturization. IBM initially launched with two versions, 170 MB and 340 MB. Both used one-inch hard drive platters stuffed within the confines of a Type II CompactFlash enclosure. IBM soon followed it with higher-capacity versions including a whopping one gigabyte

MicroDrive with an equally whopping \$1,000 price tag to match. Although high, the price per megabyte was still lower than flash memory of the day. Hitachi bought the microdrive business from IBM and developed other models including a 4GB version (the same photo retailer lists the Hitachi 4GB MicroDrive for \$99). Eventually though, the cost per megabyte advantage as well as overall capacity shifted to flash memory and MicroDrives are now mainly a curiosity. Last month, for example, Sandisk announced a 16GB UDMA CompactFlash card.

Around the same time IBM was marching out the MicroDrive, Iomega was building on its Zip drive strong suit to come up with a miniature version of the same — the Klik! drive. The floppy material was surrounded by a metal enclosure 50 x 55mm and a couple of millimetres thin and had a capacity of 40MB. The most common variation was the PC Card drive, where the drive mechanism was stuffed into a Type I PC Card. The card was designed with the drive bay at the end so that the individual Klik! media could slide in and out while the drive remained in a notebook's PC Card slot. You potentially had unlimited storage, 40MB at a time. Iomega came out with a couple of other products based on the Klik! including a music player and a photo storage and playback unit, but the products never gained traction and the Klik! ended as a commercial flop.

A happier fate was in store for another small drive being developed at the time — the 1.8-inch hard drive. Initially these were sold as PC Card based removable drives for notebook computers, and were available from a few manufacturers including Toshiba and Kingston Technology. Although the PC Card has been superseded,

development of the 1.8-inch hard drive continues. This drive offers a sweet spot convergence of physical size, price and capacity for all kinds of consumer devices such as small form computing devices, music players and portable storage. Toshiba, which introduced the first 1.8 inch PC Card drive in 2000 (a 2GB model) has continued to increase capacity so today, its biggest 1.8 inch drive is a 120GB monster. Last year Samsung introduced an even bigger 1.8-inch hard drive called the SpinPoint N2 with 160GB capacity.

There's an interesting race being replayed in the 1.8 inch and more common 2.5 inch form factor between mechanical and solid state drives. Right now it seems that mechanical is way ahead, both in price and capacity. Witness the \$1,300 price difference between the recently introduced MacBook Air with a standard drive and one with a smaller capacity solid state drive (although the price difference isn't totally due to the different drive). SanDisk has established a solid state drive or SSD business unit, and has products in the 2.5 inch notebook and the 1.8 inch ultraportable drive enclosure sizes, which it has been marketing as drop-in replacements for mechanical drives in notebook computers and other hard drive based devices. The benefits are faster read/write, lower power consumption and higher immunity to physical jarring and bumps. However capacity still lags mechanical drives. Sandisk's biggest 2.5 inch drive so far is 64GB while the latest 1.8-inch SATA SSD tops out at 72GB. Nevertheless, OEMs are being attracted to the technology. At Cebit last month, SanDisk announced its 32GB 1.8 inch SSD had been selected for use in the F5 tablet PC developed by Motion Computing.

At CES in January Samsung introduced an even smaller form — a 1.3 inch drive. LaCie has announced two products using 30GB and 40GB versions of the Samsung drives. The USB Key Max is of credit card dimensions (although thicker) with an embedded USB connector, while the Little Box is — a little box measuring 67 x 43 x 17mm (2.64 x 1.69 x .67in.) and weighing just 85g (3oz.). If the 1.3-inch drive factor proves to be popular, you can expect the solid state folks will be jumping in with their own solutions, and thus another race.

Eventually we'll look at these with a nostalgic smile much like we do with past glories like the MicroDrive. Some time soon, new storage forms that we think are the cat's whiskers won't be much bigger than the same.

*'Until next time,
David Tanaka*

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EasyShare M853

The 8.2 megapixel EasyShare M853 features a 3X optical zoom lens (35 mm equivalent: 37-111 mm) and on-board digital image stabilization. Its HD still capture feature optimizes photos for display on high definition TVs. The large 2.5-inch LCD screen makes it easy to frame the scene and combined with 17 scene modes, makes sure you'll catch the moment. The EasyShare M853 also records continuous VGA video (640 x 480) at 15 fps with sound and on-camera editing capability.



EasyShare M853



EasyShare 5300

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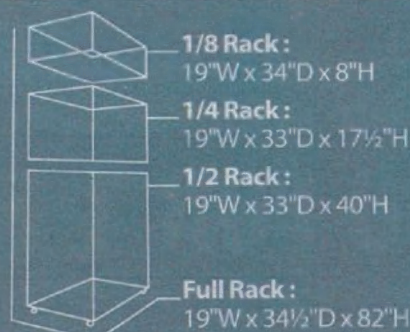


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